

258

TOSHIBA

FILE NO. 020-9922

(5084)

SERVICE MANUAL

COLOR TELEVISION

N9SS Chassis

CN36Z71

(TAC9930)

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CHAPTER 1 GENERAL ADJUSTMENTS

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

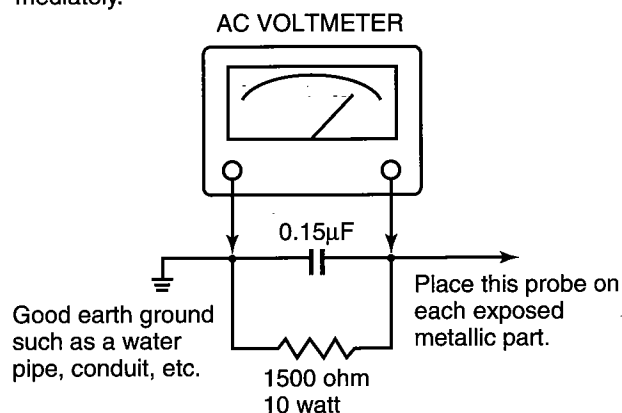
1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.
 Refer to table-1 for high voltage (A), (B).
 (See SETTING & ADJUSTING DATA on page 17)
 Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μ F AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 μ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts rms. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT (FOR 13", 14", 19", 20")

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note:1. The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning.

Refer to figure 1.

2. Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.

5. Remove the Rubber Wedges.

6. Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.

7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.

8. Check the purity of the red and blue raster.

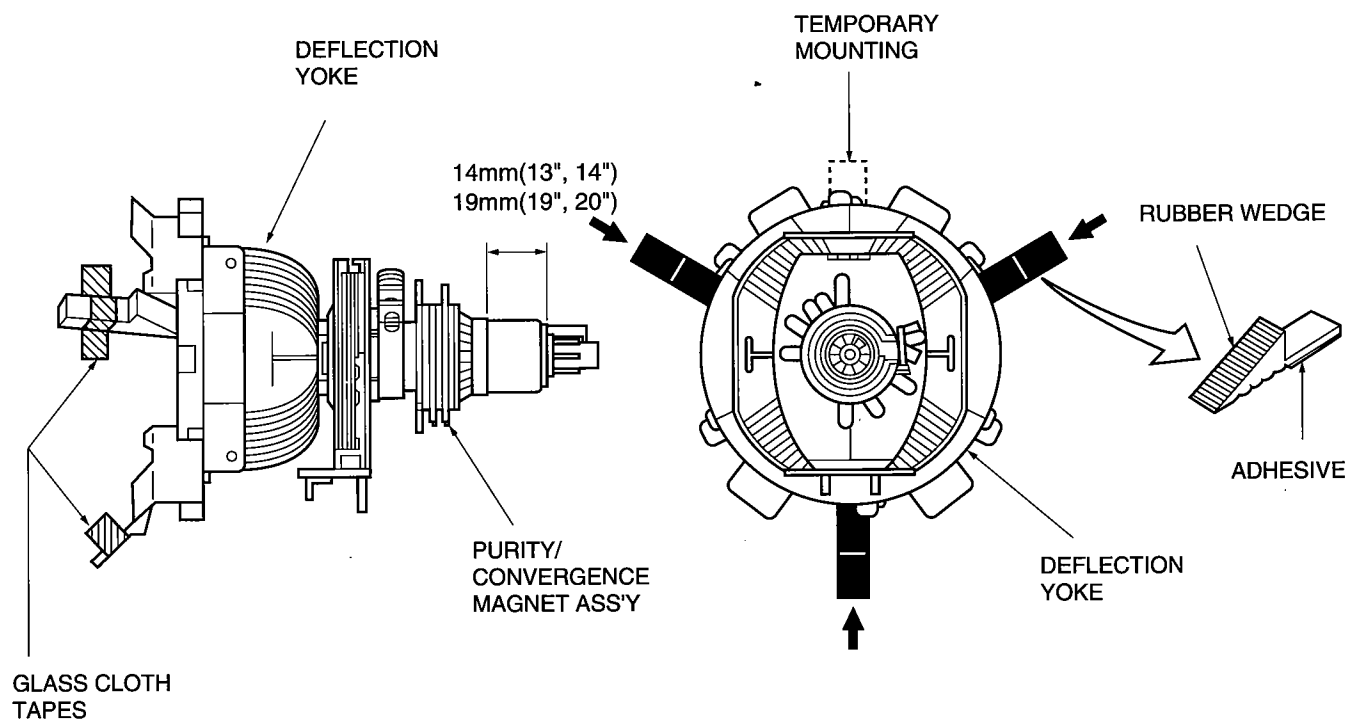


Figure 1.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Use the cross-dot pattern from among the built-in test signals.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 1.

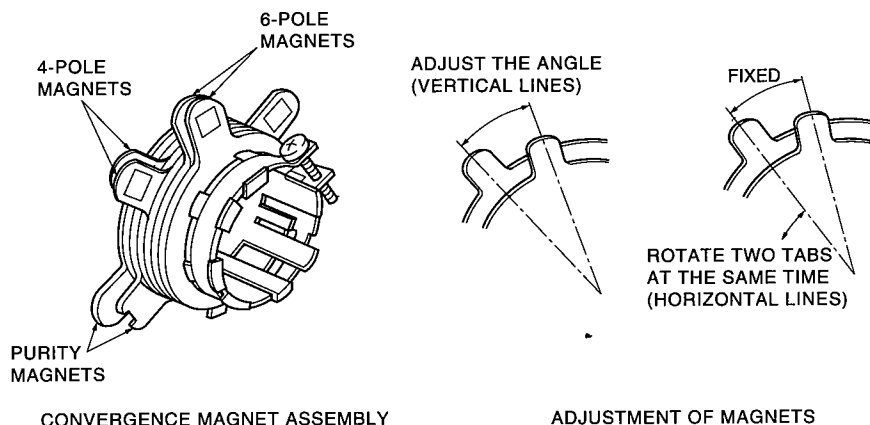
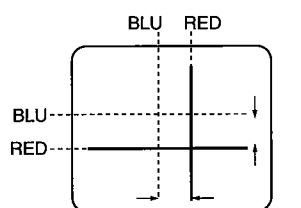
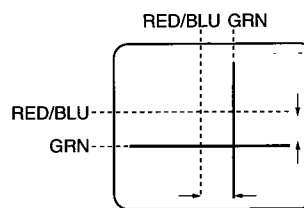


Figure 2.

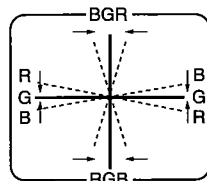


4-POLE MAGNETS MOVEMENT

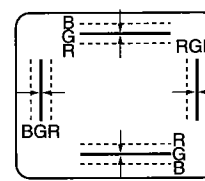


6-POLE MAGNETS MOVEMENT

Center Convergence by Convergence Magnets



INCLINE THE YOKE UP (OR DOWN)



INCLINE THE YOKE RIGHT (OR LEFT)

Circumference Convergence by DEF Yoke

Figure 3. Dot Movement Pattern

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

(FOR 35", 36")

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note: 1. The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning.

Refer to figure 1.

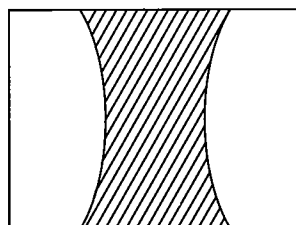
2. Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Evenly degauss the entire screen.
2. Set the CONTRAST and BRIGHTNESS Controls to the maximum.
3. Display built-in green raster using the TEST SIGNAL SELECTION function.
4. Loosen the clamp screw holding the deflection yoke (and remove the rubber Wedges).
5. Slide the yoke forward or backward to provide vertical green belt (zone) in the picture screen.
6. Rotate and spread the tabs of the purity magnet (See figure 4.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically by adjusting the magnet as shown below.



Green Belt

7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.
9. Put four wedges into the space between the picture tube and the yoke to hold the yoke in the adjusted position. (See figure 2.)
Do not tilt the yoke by excessive insertion of the wedge.
10. Remove cover paper of wedge and stick wedges on the tube to fix the yoke in the adjusted position.
Fix the wedges with glass cloth tapes.

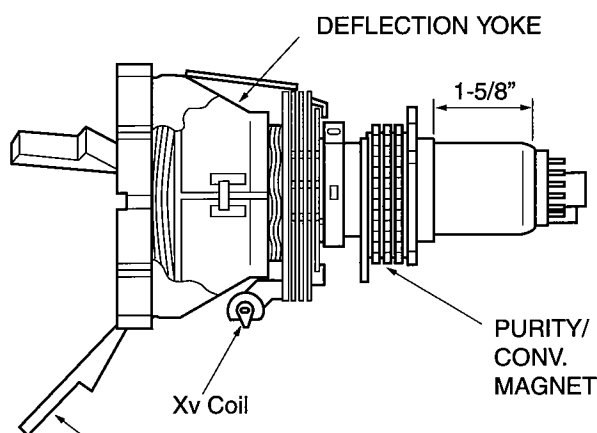


Figure 1.

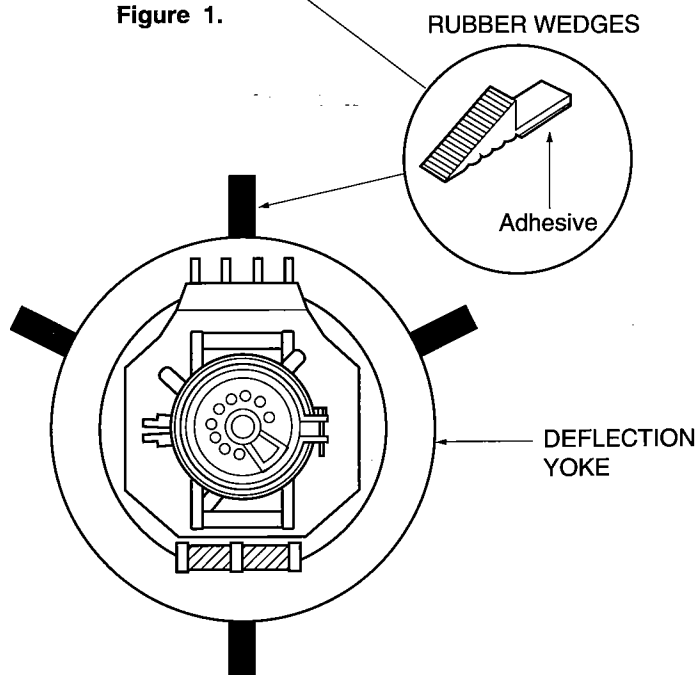


Figure 2.

4. SELECTING THE ADJUSTING ITEMS

- 1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2.
(▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 17)

5. ADJUSTING THE DATA

- 1) Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

- 1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

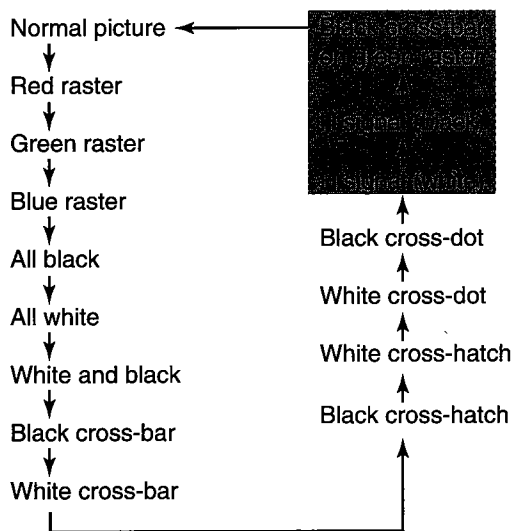
After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the RECALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item above.
Perform "Programming Channel Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. TEST SIGNAL SELECTION

- 1) Every pressing of TV/VIDEO button on the Remote Control in the Service mode changes the built-in test patterns on screen in the following order.



- 2) Press "8" button while any built-in test pattern to on the screen to output the 1 kHz sound. Press the button again to cut off the sound.

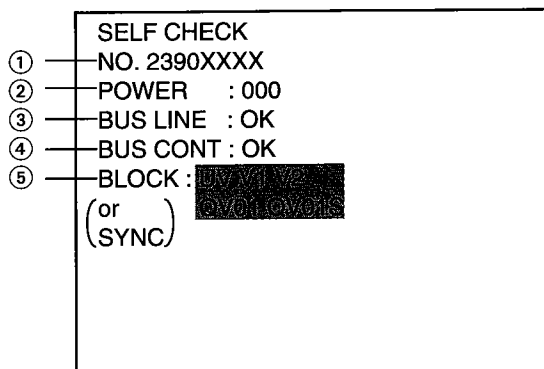
Note: If the video cable is connected to the VIDEO1 INPUT jack, the built-in pattern signals are not displayed.

Signals	Picture
• Red raster • Green raster • Blue raster • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
• H signal (75Hz) • H signal (60Hz)	

* The signals marked with ■ are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode.
The diagnosis will begin to check if interface among IC's are executed properly.
- 2) During diagnosis, the following displays are shown.



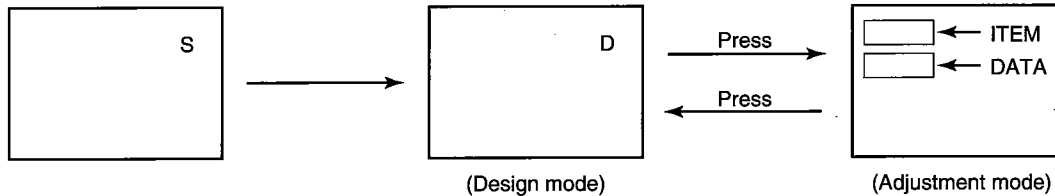
- ① Part number of microprocessor (QA01)
- ② Operation number of protection circuit (current limiter) . . . "000" is normal.
- ③ BUS line check — "OK" Normal
 "SC-L-GND" or "NG" SC-L-GND short circuit
 "SC-A-GND" or "NG" SC-A-GND short circuit
 "SC-L-SC-A" or "NG" SC-L-SC-A short circuit
- ④ BUS line ACK (acknowledge) check
 "OK" Normal
 Display of Location Number . . . NG
 (Display example)
 "QA02 NG", "H001 NG", "Q501 NG" etc.
 Note: The indication of failure place is only one place though failure places are plural. When
 repair of a failure place finishes, the next failure place is indicated. (The order of priority of
 indication is left side.)
- ⑤ Sync. signal check — Green display Normal
 Cyan display No check
 Red display NG
 [UV TV mode
 V1 VIDEO 1 mode
 V2 VIDEO 2 mode]

* The items marked with [REDACTED] are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

- 1) Select the Service mode.
- 2) While pressing RECALL button on Remote and press MENU button on TV.
- 3) Press MENU button on RV.



When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.

Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

2. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3. (▲ button for reverse order)

Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 17)

3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

ELECTRICAL ADJUSTMENTS

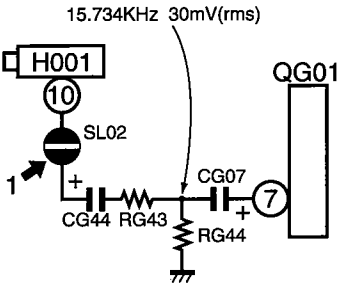
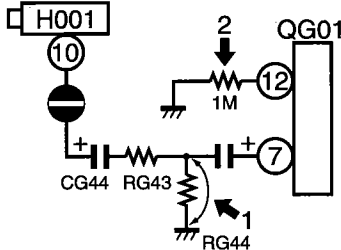
ITEM	ADJUSTMENT PROCEDURE
FOCUS VR ADJ	1. Enter the service mode, then select any register item. 2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen. 3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.
SUB-BRIGHTNESS (BRTC)	1. Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT). 2. Adjust the CONTRAST control to the minimum. 3. Call up the adjustment mode display, then select the item BRTC. 4. Press the VOLUME ▲ or ▼ button so the belt of vertical retrace line just disappear. 5. Adjust the CONTRAST control for the desired contrast. 6. Perform the HEIGHT adjustment.
SUB-COLOR (SCOL) SUB-TINT (TNTC)	1. Receive color-bar signal from color-bar generator. 2. Press the RESET button. 3. Connect oscilloscope to TP501 on SIGNAL board. 4. Adjust the CONTRAST control to the minimum. 5. Call up the adjustment mode display, then select the item TNTC. 6. Adjust the SUB-TINT by pressing the VOLUME ▲ or ▼ button to obtain a blue bar to magenta bar ratio of 3:2 as shown. 7. Press the RESET button. 8. Select the item SCOL. 9. Adjust the SUB-COLOR by pressing the VOLUME ▲ or ▼ button to achieve 1.6V_{0-P} of a blue bar on scope. 10. Check the picture with off-air signal.
WIDTH (WID)	1. Call up the adjustment mode display, then select the item WID. 2. Press the VOLUME ▲ or ▼ button to get the picture so the left and right edges of raster begins to lack. 3. Press the VOLUME ▲ or ▼ button to advance the data by 7 steps. Note : Check the horizontal picture position is correct.

ITEM	ADJUSTMENT PROCEDURE
E-W PARABOLA (DPC) (PARA)	<

MTS ADJUSTMENT (FOR N7S CHASSIS)

No.	ITEM	INPUT SIGNAL	ADJUSTMENT PROCEDURE
1	ATTENUATOR (ATT)	1kHz 30% mod. → ANT terminal	1. Connect rms meter to pin 12 of H002. 2. Display item ATT on screen. 3. Change data by Volume ▲/▼ buttons so that output at pin 12 of H002 becomes value as close as 142mVrms.
2	STEREO VCO (STVC)	No signal	1. Display item STVC, and connect pin 9 of H002 to ground. 2. Connect frequency counter to pin 12 of H002. 3. Change data by Volume ▲/▼ buttons so that the reading of counter becomes value as close as 4fH (62.936kHz).
3	SAP VCO (SAVC)	78.670kHz 147mVrms → pin 9 of H002 - Monaural signal → ANT	1. Display item SAVC. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA7=0 and STA8=1. SAVC XXH STA7:0 STA8:1
4	STEREO FILTER (STRF)	9.4kHz 600mVrm → pin 9 of H002 - Monaural signal → ANT	1. Display item STRF on screen. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA3=1. STRF XXH STA3:1
5	SAP FILTER (SAPF)	88kHz 120mVrms → pin 9 of H002 - Monaural signal → ANT	1. Display item SAPF. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA4=1. SAPF XXH STA4:1
6	STEREO SEPARATION (WBAN)	STEREO 300Hz R-channel only → ANT	1. Select "STEREO" mode from the MTS function in the Audio menu. 2. Display item WBAN on screen. 3. Connect oscilloscope to pin 14 of H002. 4. Change data by Volume ▲/▼ buttons so that 300Hz element on scope becomes minimum.
	(SPEC)	STEREO 3kHz R-channel only → ANT	5. Display item SPEC on screen. 6. Change data by Volume ▲/▼ buttons so that 3kHz element on scope becomes minimum.

MTS ADJUSTMENT (FOR N7ES CHASSIS)

No.	ITEM	INPUT SIGNAL	ADJUSTMENT PROCEDURE
1	ATTENUATOR (ATT)	1kHz 30% mod. → ANT terminal	1. Connect rms meter to pin 34 of QG01. 2. Display item ATT on screen. 3. Change data by VOLUME ▲/▼ buttons so that the reading of meter becomes value as close as 137mVrms.
2	STEREO VCO (STVC)	No signal	1. Short circuit RG44 with a jumper wire. 2. Display item STVC on screen. 3. Connect frequency counter to pin 34 of QG01. 4. Change data by VOLUME ▲/▼ buttons so that the reading of counter becomes value as close as 15.73kHz.
3	STEREO FILTER (STRF)	15.734kHz 30mV(rms) 	1. Unsolder the solder link SL02. 2. Display item STRF on screen. 3. Connect oscilloscope to pin 34 of QG01. 4. Change data by VOLUME ▲/▼ button to minimize AC output level on scope. 5. Resolder SL02.
4	STEREO SEPARATION (WBAN)	STEREO 300Hz R-channel only → ANT	1. Display item WBAN on screen. 2. Connect oscilloscope to pin 35 of QG01. 3. Change data by VOLUME ▲/▼ buttons so that 300Hz element on scope becomes minimum.
	(SPEC)	STEREO 3kHz R-channel only → ANT	4. Display item SPEC on screen. 5. Change data by Volume ▲/▼ buttons so that 3kHz element on scope becomes minimum.
5	SAP VCO (SAVC)	No signal 	1. Shortcircuit RG44 with a short jumper. 2. Connect 1Mohm resistor between pin 12 of QG01 and ground. 3. Display item SAVC on screen. 4. Connect frequency counter to pin 34 of QG01. 5. Change data by VOLUME ▲/▼ buttons so that the reading of counter becomes value as close as 78.67kHz. 6. Remove the short jumper and 1M ohm resistor.

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage must be measured below (B) kV.

Refer to table-1 for high voltage (B).
(See SETTING & ADJUSTING DATA on page 17)

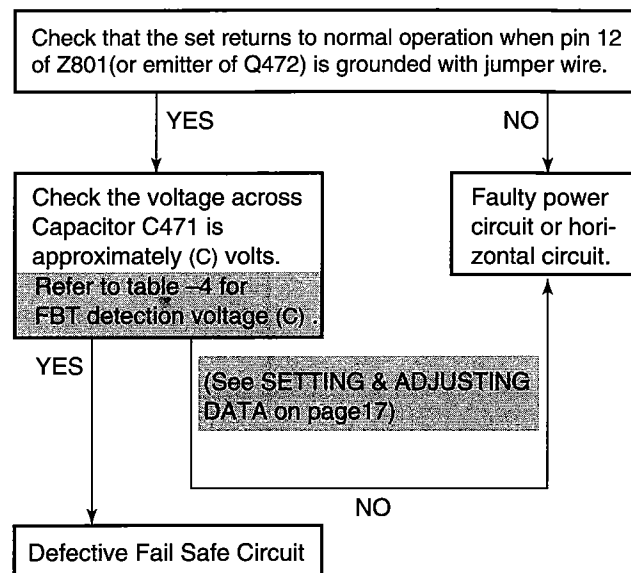
4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on and press the RESET button.
2. Temporarily short TP-(R) and TP-(X) with a jumper wire. Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the power switch on to produce a normal picture.

Troubleshooting Guide for Fail Safe Circuit



CHAPTER 2 SPECIFIC INFORMATION

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】

		36"
HIGH VOLTAGE AT ZERO BEAM:	(A)	32.2 kV
MAX HIGH VOLTAGE:	(B)	33.6 kV

Table-1

【SERVICE MODE】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Name of adjustment	Data	Item	Name of adjustment	Data
RCUT	R CUTOFF	40H	HIT	HEIGHT	35H
GCUT	G CUTOFF	40H	VLIN	V-LINEARITY	15H
BCUT	B CUTOFF	40H	VSC	V-S CORRECTION	03H
GDRV	G DRIVE	40H	VPS	V-SHIFT	0FH
BDRV	B DRIVE	40H	VCP	V-COMPENSATION	02H
SCOL	SUB COLOR	05H	WID	PICTURE WIDTH	12H
SCNT	SUB CONTRAST	10H	PARA	E-W PARABOLA (DPC)	30H
CNTX	SUB-CONTRAST	7FH	CNR	E-W CORNER	02H
BRTC	SUB-BRIGHT	80H	TRAP	TRAPEZIUM	1DH
COLC	SUB-COLOR	40H	HCP	H-COMPENSATION	00H
TNTC	SUB-TINT	44H	VFC	V-F CORRECTION	0FH
HPOS	HORIZ. POSITION	14H	GMPS	GMPS	00H
VPOS	VERT. POSITION	04H			

Table-2

【DESIGN MODE】

ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Data	Remarks
		Preset Data	
	* There are no adjustment mode in the DESIGN MODE.		

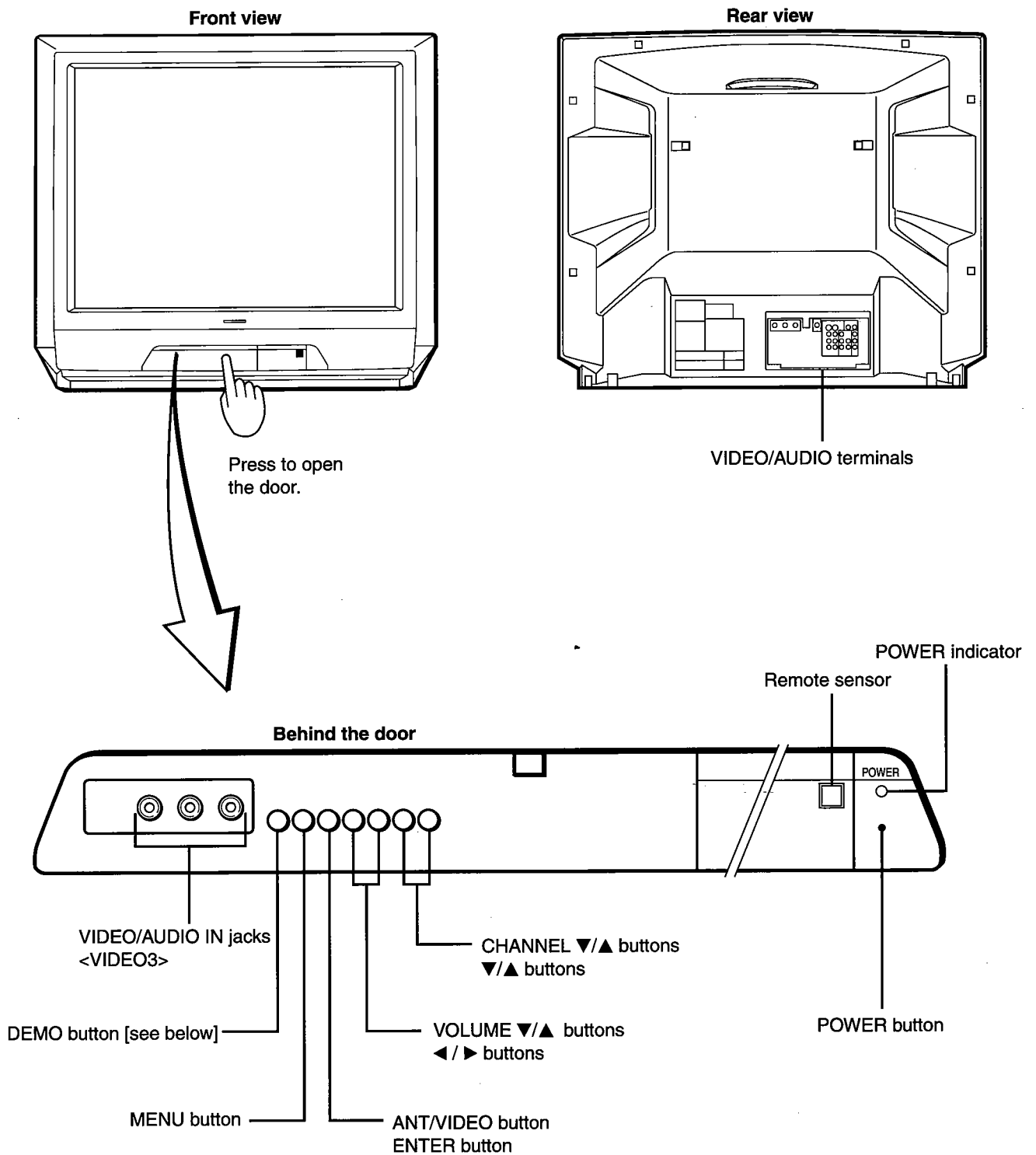
Table-3

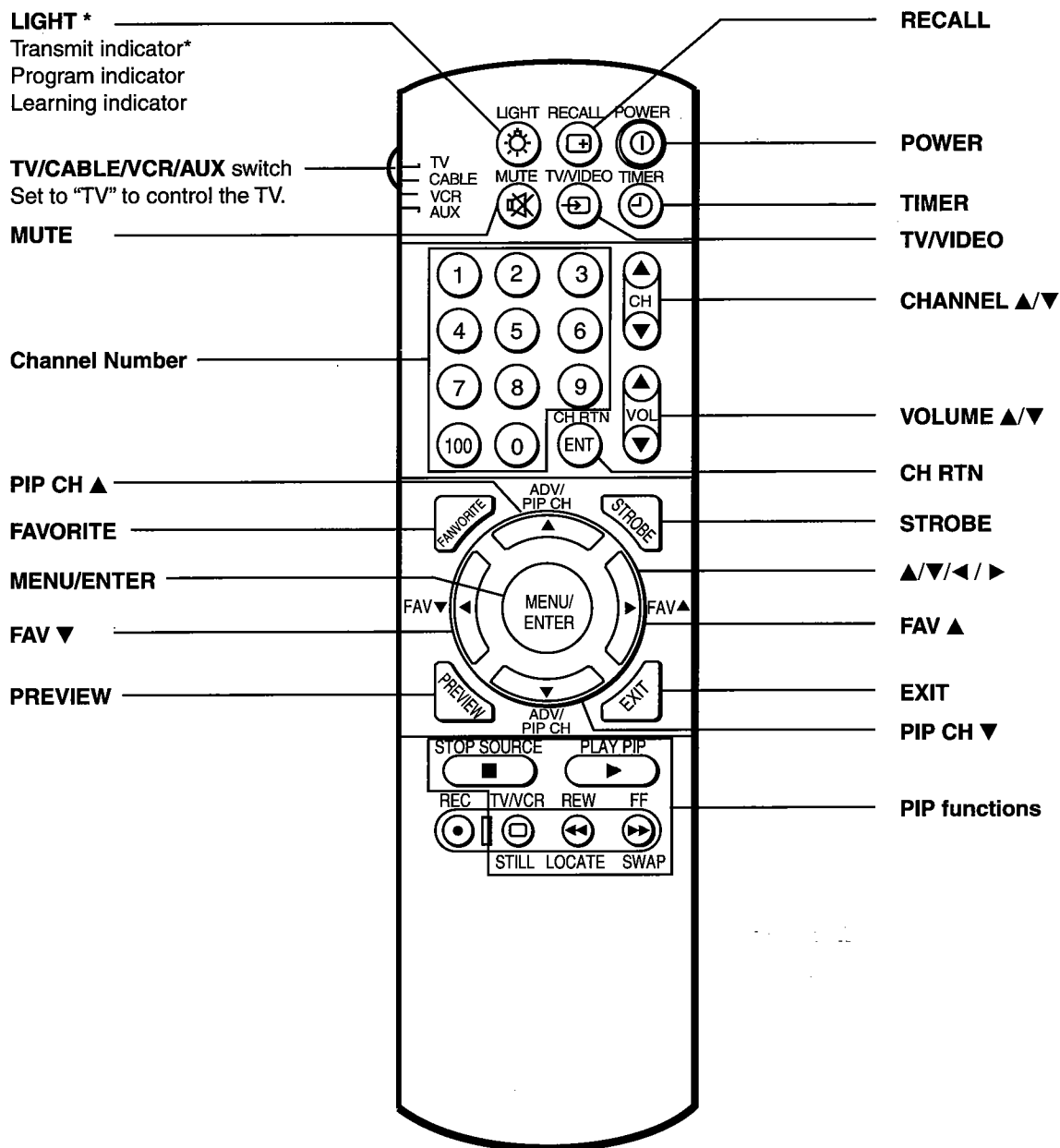
【CIRCUIT CHECKS】

FBT DETECTION VOLTAGE	(C)	22.8 V
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Table-4

LOCATION OF CONTROLS





PROGRAMMING CHANNEL MEMORY

The channel memory is the list of TV channel numbers your TV will stop on when you press the CHANNEL ▲ or ▼ button. **First, use the TV/CABLE and CH PROGRAM functions to preset all active channels in your area automatically.** If necessary, arrange the preset channels with the ADD/ERASE functions so that you can tune into only desired channels. **Note:** If you utilize both ANT-1 and ANT-2 terminals for some model, perform programming channels for each input source.

TV/CABLE function

- 1 Press **MENU**, then press ► or ◀ until the SET UP menu appears.
- 2 Press ▼ (or ▲) until "TV/CABLE" is highlighted.
- 3 Press ► or ◀ to highlight either "TV" or "CABLE", whichever you use.

CH PROGRAM function

- 1 Select "CH PROGRAM" following steps 1 and 2 above.
- 2 Press ► or ◀ to start channel programming.
The TV will automatically cycle through all the TV or CABLE channels selected by the TV/CABLE function, and store active channels in the channel memory.
- 3 When channel programming is complete, you will see the message to the right.
- 4 Press **CHANNEL** ▲ or ▼ to make sure the channel programming has been done properly.

ADD/ERASE function

After performing the CH PROGRAM function, you can add or erase specific channels.

- 1 Select the channel you want to erase using the CHANNEL ▲ or ▼ button, or select the channel you want to add using the **Channel Number** buttons.
- 2 Press **MENU**, then press ► or ◀ until the SET UP menu appears.
- 3 Press ▼ (or ▲) until "ADD/ERASE" is highlighted.
- 4 Press ► or ◀ :
To erase the channel
Press the button until "Erase" is highlighted.

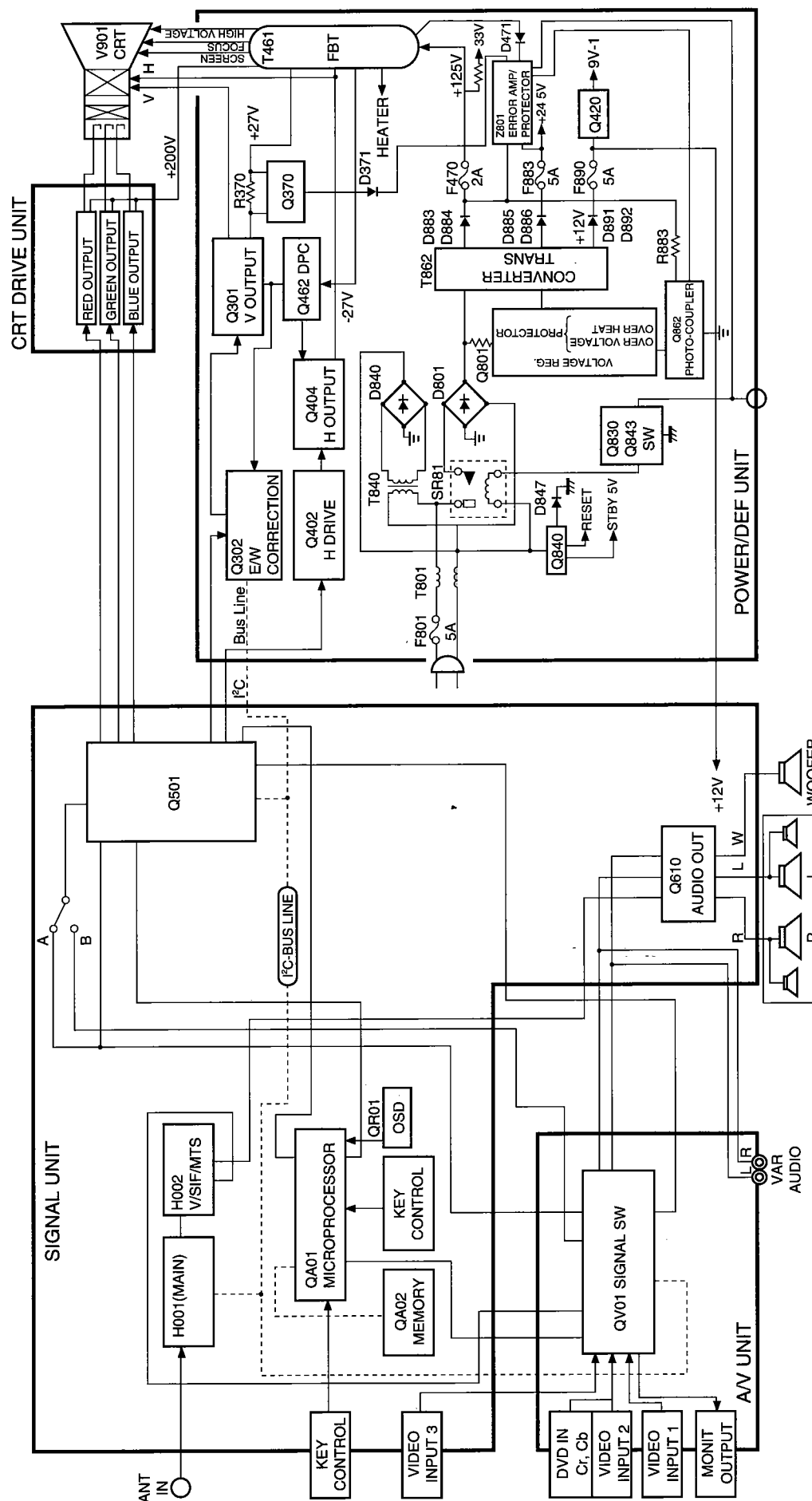
To add the channel
Press the button until "Add" is highlighted.
- 5 Repeat steps 1 to 4 for other channels.

You have now completed the channel programming.

Note: The CHANNEL ▼/▲ buttons on the TV function as the ▼/▲ buttons while a menu is on the screen.

* Please refer to owner's manual in detail.

CIRCUIT BLOCK DIAGRAM



CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols " Δ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.
- The PC board assembly with * mark is no longer available after the end of the production.

Model : CN36Z71

Capacitors CD : Ceramic Disk PF : Plastic Film EL : Electrolytic
Resistors CF : Carbon Film CC : Carbon Composition MF : Metal Film
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor
(All CD and PF capacitors are $\pm 5\%$, 50V and all resistors, $\pm 5\%$, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C101	24796339	EL, 3.3 μ F, $\pm 20\%$, 35V
C104	24793221	EL, 220 μ F, $\pm 20\%$, 10V
C105	24474102	CD, 1000pF, $\pm 10\%$
C106	24797100	EL, 10 μ F, $\pm 20\%$, 50V
C107	24763221	EL, 220 μ F, $\pm 20\%$, 16V
C111	24763221	EL, 220 μ F, $\pm 20\%$, 16V
C112	24474102	CD, 1000pF, $\pm 10\%$
C113	24793101	EL, 100 μ F, $\pm 20\%$, 10V
C114	24763221	EL, 220 μ F, $\pm 20\%$, 16V
C201	24794100	EL, 10 μ F, $\pm 20\%$, 16V
C203	24538104	PF, 0.1 μ F
C204	24797010	EL, 1 μ F, $\pm 20\%$, 50V
C205	24206229	EL, 2.2 μ F, $\pm 20\%$, 50V
C206	24206108	EL, 0.1 μ F, $\pm 20\%$, 50V
C207	24436390	CD, 39pF
C208	24436390	CD, 39pF
C209	24436390	CD, 39pF
C212	24794100	EL, 10 μ F, $\pm 20\%$, 16V
C213	24206010	EL, 1 μ F, $\pm 20\%$, 50V
C214	24794220	EL, 22 μ F, $\pm 20\%$, 16V
C220	24203100	EL, 10 μ F, $\pm 20\%$, 16V
C221	24203100	EL, 10 μ F, $\pm 20\%$, 16V
C222	24203100	EL, 10 μ F, $\pm 20\%$, 16V
C223	24436101	CD, 100pF
C260	24085967	EL, 47 μ F, $\pm 20\%$, 16V, Non-Polar
C303	24214471	CD, 470pF, $\pm 10\%$, 500V
C305	24617915	EL, 1 μ F, $\pm 10\%$, 50V
C306	24630798	EL, 3300 μ F, $\pm 10\%$, 25V
C307	24693473	PF, 0.047 μ F, 100V
C308	24668221	EL, 220 μ F, $\pm 20\%$, 35V
C309	24591102	PF, 1000pF
C310	24073073	EL, 2200 μ F, $\pm 20\%$, 35V
C311	24214102	CD, 1000pF, $\pm 10\%$, 500V
C313	24082057	PF, 0.22 μ F, 100V
C314	24591683	PF, 0.068 μ F
C315	24797229	EL, 2.2 μ F, $\pm 20\%$, 50V
C316	24539104	PF, 0.1 μ F
C318	24666101	EL, 100 μ F, $\pm 20\%$, 16V
C319	24212102	CD, 1000pF, $\pm 10\%$

Location No.	Part No.	Description
C320	24668101	EL, 100 μ F, $\pm 20\%$, 35V
C321	24591203	PF, 0.02 μ F
C322	24617912	EL, 2.2 μ F, $\pm 10\%$, 50V
C323	24538224	PF, 0.22 μ F
C324	24538683	PF, 0.068 μ F
C327	24617787	EL, 470 μ F, $\pm 20\%$, 16V
C370	24794101	EL, 100 μ F, $\pm 20\%$, 16V
C371	24794100	EL, 10 μ F, $\pm 20\%$, 16V
C390	24797100	EL, 10 μ F, $\pm 20\%$, 50V
C391	24666100	EL, 10 μ F, $\pm 20\%$, 16V
C392	24085981	EL, 10 μ F, $\pm 20\%$, 16V, Non-Polar
C393	24666100	EL, 10 μ F, $\pm 20\%$, 16V
C394	24591104	PF, 0.1 μ F
C396	24082825	PF, 1800pF, $\pm 3\%$, 1800V
C401	24538104	PF, 0.1 μ F
C403	24591203	PF, 0.02 μ F
C404	24797229	EL, 2.2 μ F, $\pm 20\%$, 50V
C413	24214821	CD, 820pF, $\pm 10\%$, 500V
C415	24591392	PF, 3900pF
C416	24678010	EL, 1 μ F, $\pm 20\%$, 200V
C417	24214391	CD, 390pF, $\pm 10\%$, 500V
C420	24666101	EL, 100 μ F, $\pm 20\%$, 16V
C423	24829393	PF, 0.039 μ F, 400V
C430	24232103	CD, 0.01 μ F, $\pm 80\%$, $\pm 20\%$
C431	24794101	EL, 100 μ F, $\pm 20\%$, 16V
Δ C440	24082958	PF, 7800pF, $\pm 3\%$, 1500V
Δ C442	24082916	PF, 0.27 μ F, 315V
C444	24082610	PF, 5600pF, $\pm 3\%$, 1800V
C445	24828473	PF, 0.047 μ F, 200V
C446	24679330	EL, 33 μ F, $\pm 20\%$, 250V
C447	24829183	PF, 0.018 μ F, 400V
C448	24640908	EL, 33 μ F, $\pm 20\%$, 160V
C460	24796331	EL, 330 μ F, $\pm 20\%$, 35V
C463	24212152	CD, 1500pF, $\pm 10\%$
C464	24640872	EL, 10 μ F, $\pm 20\%$, 100V
C466	24797478	EL, 0.47 μ F, $\pm 20\%$, 50V
Δ C467	24095883	PF, 0.015 μ F, $\pm 3\%$, 630V
C470	24794220	EL, 22 μ F, $\pm 20\%$, 16V
C471	24206479	EL, 4.7 μ F, $\pm 20\%$, 50V
C472	24538474	PF, 0.47 μ F

Location No.	Part No.	Description
C473	24538474	PF, 0.47 μ F
C474	24794100	EL, 10 μ F, $\pm$ 20%, 16V
C475	24095887	PF, 0.01 μ F, $\pm$ 3%, 630V
C477	24591104	PF, 0.1 μ F
C478	24591563	PF, 0.056 μ F
C481	24538104	PF, 0.1 μ F
C492	24214121	CD, 120pF, $\pm$ 10%, 500V
C498	24436270	CD, 27pF
C501	24232103	CD, 0.01 μ F, +80%, -20%
C502	24232103	CD, 0.01 μ F, +80%, -20%
C503	24763101	EL, 100 μ F, $\pm$ 20%, 16V
C504	24591222	PF, 2200pF
C505	24353120	CD, 12pF
C508	24794100	EL, 10 μ F, $\pm$ 20%, 16V
C509	24763101	EL, 100 μ F, $\pm$ 20%, 16V
C510	24763101	EL, 100 μ F, $\pm$ 20%, 16V
C511	24232103	CD, 0.01 μ F, +80%, -20%
C512	24206228	EL, 0.22 μ F, $\pm$ 20%, 50V
C513	24232103	CD, 0.01 μ F, +80%, -20%
C514	24538104	PF, 0.1 μ F
C515	24538104	PF, 0.1 μ F
C517	24472010	CD, 1pF
C601	24232103	CD, 0.01 μ F, +80%, -20%
C602	24232103	CD, 0.01 μ F, +80%, -20%
C612	24793221	EL, 220 μ F, $\pm$ 20%, 10V
C660	24669229	EL, 2.2 μ F, $\pm$ 20%, 50V
C661	24794100	EL, 10 μ F, $\pm$ 20%, 16V
C664	24794100	EL, 10 μ F, $\pm$ 20%, 16V
C671	24669010	EL, 1 μ F, $\pm$ 20%, 50V
C673	24669010	EL, 1 μ F, $\pm$ 20%, 50V
C674	24797010	EL, 1 μ F, $\pm$ 20%, 50V
C675	24667470	EL, 47 μ F, $\pm$ 20%, 25V
C676	24797479	EL, 4.7 μ F, $\pm$ 20%, 50V
C677	24591102	PF, 1000pF
C678	24591102	PF, 1000pF
C679	24591104	PF, 0.1 μ F
C680	24668102	EL, 1000 μ F, $\pm$ 20%, 35V
C681	24668471	EL, 470 μ F, $\pm$ 20%, 35V
C682	24668471	EL, 470 μ F, $\pm$ 20%, 35V
C683	24668102	EL, 1000 μ F, $\pm$ 20%, 35V
C684	24591104	PF, 0.1 μ F
C685	24591104	PF, 0.1 μ F
C686	24591104	PF, 0.1 μ F
C704	24232103	CD, 0.01 μ F, +80%, -20%
C705	24232103	CD, 0.01 μ F, +80%, -20%
C707	24794470	EL, 47 μ F, $\pm$ 20%, 16V
C712	24666470	EL, 47 μ F, $\pm$ 20%, 16V
C713	24790100	EL, 10 μ F, $\pm$ 20%, 160V
C714	24436101	CD, 100pF
C715	24214472	CD, 4700pF, $\pm$ 10%, 500V
C716	24436101	CD, 100pF
C717	24214472	CD, 4700pF, $\pm$ 10%, 500V
C718	24794470	EL, 47 μ F, $\pm$ 20%, 16V
C719	24435560	CD, 56pF, 500V
C720	24790100	EL, 10 μ F, $\pm$ 20%, 160V
C721	24794470	EL, 47 μ F, $\pm$ 20%, 16V
C722	24436561	CD, 560pF
C726	24212102	CD, 1000pF, $\pm$ 10%
C801	24095670	PF, 0.22 μ F, $\pm$ 20%, AC125V
C802	24095679	PF, 0.1 μ F, $\pm$ 20%, AC125V
C805	24092623	CD, 0.01 μ F, +80%, -20%, AC250V
C806	24092623	CD, 0.01 μ F, +80%, -20%, AC250V

Location No.	Part No.	Description
C810	24086062	EL, 1000 μ F, $\pm$ 20%, 200V
C811	24092585	CD, 4700pF, $\pm$ 20%, AC250V
C812	24092585	CD, 4700pF, $\pm$ 20%, AC250V
C813	24092586	CD, 0.01 μ F, $\pm$ 20%, AC250V
C814	24092586	CD, 0.01 μ F, $\pm$ 20%, AC250V
C831	24203470	EL, 47 μ F, $\pm$ 20%, 16V
C840	24667221	EL, 220 μ F, $\pm$ 20%, 25V
C842	24792101	EL, 100 μ F, $\pm$ 20%, 6.3V
C843	24538104	PF, 0.1 μ F
C860	24214103	CD, 0.01 μ F, $\pm$ 10%, 500V
C861	24212101	CD, 100pF, $\pm$ 10%
C863	24538104	PF, 0.1 μ F
C864	24092345	CD, 1000pF, $\pm$ 10%, 2kV
C865	24092345	CD, 1000pF, $\pm$ 10%, 2kV
C866	24766478	EL, 0.47 μ F, $\pm$ 20%, 50V
C867	24591103	PF, 0.01 μ F
C868	24667470	EL, 47 μ F, $\pm$ 20%, 25V
C869	24678229	EL, 2.2 μ F, $\pm$ 20%, 200V
C870	24820184	PF, 0.18 μ F, 630V
C871	24092345	CD, 1000pF, $\pm$ 10%, 2kV
C873	24591224	PF, 0.22 μ F
C874	24435221	CD, 220pF, 500V
C875	24435221	CD, 220pF, 500V
C876	24538104	PF, 0.1 μ F
C877	24092345	CD, 1000pF, $\pm$ 10%, 2kV
C883	24092333	CD, 100pF, $\pm$ 10%, 2kV
C884	24640018	EL, 220 μ F, $\pm$ 20%, 160V
C885	24214471	CD, 470pF, $\pm$ 10%, 500V
C886	24214471	CD, 470pF, $\pm$ 10%, 500V
C887	24667102	EL, 1000 μ F, $\pm$ 20%, 25V
C889	24668332	EL, 3300 μ F, $\pm$ 20%, 35V
C891	24082229	PF, 0.1 μ F, $\pm$ 10%, 250V
C892	24794100	EL, 10 μ F, $\pm$ 20%, 16V
C893	24092338	CD, 270pF, $\pm$ 10%, 2kV
C894	24092338	CD, 270pF, $\pm$ 10%, 2kV
C896	24214471	CD, 470pF, $\pm$ 10%, 500V
C897	24667222	EL, 2200 μ F, $\pm$ 20%, 25V
C898	24539224	PF, 0.22 μ F
C899	24214471	CD, 470pF, $\pm$ 10%, 500V
C902	24092353	CD, 4700pF, $\pm$ 10%, 2kV
C904	24436681	CD, 680pF
C905	24436681	CD, 680pF
C907	24436681	CD, 680pF
C909	24679220	EL, 22 μ F, $\pm$ 20%, 250V
C910	24797478	EL, 0.47 μ F, $\pm$ 20%, 50V
C911	24203100	EL, 10 μ F, $\pm$ 20%, 16V
C912	24794471	EL, 470 μ F, $\pm$ 20%, 16V
C913	24763102	EL, 1000 μ F, $\pm$ 20%, 16V
C914	24212103	CD, 0.01 μ F, $\pm$ 10%
C920	24232103	CD, 0.01 μ F, +80%, -20%
C921	24232103	CD, 0.01 μ F, +80%, -20%
C930	24214101	CD, 100pF, $\pm$ 10%, 500V
C931	24214101	CD, 100pF, $\pm$ 10%, 500V
C3440	24082395	PF, 1100pF, $\pm$ 3%, 1250V
CA13	24474221	CD, 220pF, $\pm$ 10%
CA22	24474101	CD, 100pF, $\pm$ 10%
CA23	24474101	CD, 100pF, $\pm$ 10%
CA24	24474101	CD, 100pF, $\pm$ 10%
CA25	24474101	CD, 100pF, $\pm$ 10%
CA33	24232103	CD, 0.01 μ F, +80%, -20%
CA36	24474101	CD, 100pF, $\pm$ 10%
CA37	24474101	CD, 100pF, $\pm$ 10%
CA38	24474101	CD, 100pF, $\pm$ 10%
CA42	24794100	EL, 10 μ F, $\pm$ 20%, 16V

Location No.	Part No.	Description
CA43	24232103	CD, 0.01 μ F, +80%, -20%
CA44	24232103	CD, 0.01 μ F, +80%, -20%
CA68	24794100	EL, 10 μ F, $\pm$ 20%, 16V
CA69	24232103	CD, 0.01 μ F, +80%, -20%
CB01	24794470	EL, 47 μ F, $\pm$ 20%, 16V
CB10	24085981	EL, 10 μ F, $\pm$ 20%, 16V, Non-Polar
CB11	24436101	CD, 100pF
CB12	24203101	EL, 100 μ F, $\pm$ 20%, 16V
CB22	24436101	CD, 100pF
CB23	24436101	CD, 100pF
CB24	24436101	CD, 100pF
CB25	24436101	CD, 100pF
CB33	24232103	CD, 0.01 μ F, +80%, -20%
CB40	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CB41	24591102	PF, 1000pF
CB42	24232103	CD, 0.01 μ F, +80%, -20%
CB42	24436561	CD, 560pF
CB43	24591122	PF, 1200pF
CB44	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CB45	24232103	CD, 0.01 μ F, +80%, -20%
CB46	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CB47	24232103	CD, 0.01 μ F, +80%, -20%
CB50	24591104	PF, 0.1 μ F
CB51	24591104	PF, 0.1 μ F
CB90	24591103	PF, 0.01 μ F
CB91	24794101	EL, 100 μ F, $\pm$ 20%, 16V
CB400	24591104	PF, 0.1 μ F
CB410	24591104	PF, 0.1 μ F
CB411	24085981	EL, 10 μ F, $\pm$ 20%, 16V, Non-Polar
CB412	24436101	CD, 100pF
CB413	24794101	EL, 100 μ F, $\pm$ 20%, 16V
CD02	24591562	PF, 5600pF
CD03	24591393	PF, 0.039 μ F
CD04	24591393	PF, 0.039 μ F
CD08	24794100	EL, 10 μ F, $\pm$ 20%, 16V
CD10	24436101	CD, 100pF
CD12	24436101	CD, 100pF
CD13	24797479	EL, 4.7 μ F, $\pm$ 20%, 50V
CD14	24797229	EL, 2.2 μ F, $\pm$ 20%, 50V
CD15	24794470	EL, 47 μ F, $\pm$ 20%, 16V
CD16	24797229	EL, 2.2 μ F, $\pm$ 20%, 50V
CR01	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CR02	24232103	CD, 0.01 μ F, +80%, -20%
CR03	24436101	CD, 100pF
CR04	24436101	CD, 100pF
CR05	24436101	CD, 100pF
CR06	24436101	CD, 100pF
CR07	24436101	CD, 100pF
CR08	24436101	CD, 100pF
CR09	24591104	PF, 0.1 μ F
CR10	24203470	EL, 47 μ F, $\pm$ 20%, 16V
CR11	24591104	PF, 0.1 μ F
CR12	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CR13	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CR14	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CR15	24538104	PF, 0.1 μ F
CR16	24538104	PF, 0.1 μ F
CR17	24538104	PF, 0.1 μ F
CR18	24591104	PF, 0.1 μ F
CR19	24591104	PF, 0.1 μ F
CR20	24591104	PF, 0.1 μ F
CR21	24232103	CD, 0.01 μ F, +80%, -20%

Location No.	Part No.	Description
CR22	24794101	EL, 100 μ F, $\pm$ 20%, 16V
CS03	24212102	CD, 1000pF, $\pm$ 10%
CS04	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CS07	24212102	CD, 1000pF, $\pm$ 10%
CS08	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CS09	24436331	CD, 330pF
CS10	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS15	24436331	CD, 330pF
CS16	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS21	24436101	CD, 100pF
CS22	24436101	CD, 100pF
CS24	24436331	CD, 330pF
CS25	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS28	24436331	CD, 330pF
CS29	24436331	CD, 330pF
CS32	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CS33	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CS34	24436331	CD, 330pF
CS35	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS36	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS38	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS41	24436331	CD, 330pF
CS42	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS43	24436331	CD, 330pF
CS44	24206229	EL, 2.2 μ F, $\pm$ 20%, 50V
CS115	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CS116	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CS118	24794470	EL, 47 μ F, $\pm$ 20%, 16V
CS119	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CS120	24232103	CD, 0.01 μ F, +80%, -20%
CS121	24206010	EL, 1 μ F, $\pm$ 20%, 50V
CV01	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CV03	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CV04	24212102	CD, 1000pF, $\pm$ 10%
CV05	24232103	CD, 0.01 μ F, +80%, -20%
CV07	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CV09	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V
CV10	24212102	CD, 1000pF, $\pm$ 10%
CV11	24232103	CD, 0.01 μ F, +80%, -20%
CV13	24591223	PF, 0.022 μ F
CV15	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CV16	24232103	CD, 0.01 μ F, +80%, -20%
CV17	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CV18	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CV19	24232103	CD, 0.01 μ F, +80%, -20%
CV29	24232103	CD, 0.01 μ F, +80%, -20%
CV31	24085982	EL, 0.1 μ F, $\pm$ 20%, 16V, Non-Polar
CV36	24203220	EL, 22 μ F, $\pm$ 20%, 16V
CV38	24232103	CD, 0.01 μ F, +80%, -20%
CV39	24763471	EL, 470 μ F, $\pm$ 20%, 16V
CV40	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CV41	24797478	EL, 0.47 μ F, $\pm$ 20%, 50V
CV42	24666330	EL, 33 μ F, $\pm$ 20%, 16V
CV44	24436470	CD, 47pF
CV45	24436220	CD, 22pF
CV46	24232103	CD, 0.01 μ F, +80%, -20%
CV60	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CV61	24762471	EL, 470 μ F, $\pm$ 20%, 10V
CV62	24232103	CD, 0.01 μ F, +80%, -20%
CV63	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CV64	24232103	CD, 0.01 μ F, +80%, -20%
CV65	24763471	EL, 470 μ F, $\pm$ 20%, 16V
CV120	24206108	EL, 0.1 μ F, $\pm$ 20%, 50V

Location No.	Part No.	Description
CW02	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CW03	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CW04	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CW05	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CW06	24232103	CD, 0.01 μ F, +80%, -20%
CW07	24203100	EL, 10 μ F, $\pm$ 20%, 16V
CW08	24763101	EL, 100 μ F, $\pm$ 20%, 16V
CW09	24232103	CD, 0.01 μ F, +80%, -20%
CY80	24203100	EL, 10 μ F, $\pm$ 20%, 16V
RESISTORS		
R101	24382183	OMF, 18k ohm, 1W
R102	24366123	CF, 12k ohm
R151	24366562	CF, 5600 ohm
R152	24366103	CF, 10k ohm
R201	24366821	CF, 820 ohm
R202	24366102	CF, 1k ohm
R204	24366104	CF, 100k ohm
R205	24366101	CF, 100 ohm
R206	24366102	CF, 1k ohm
R207	24366101	CF, 100 ohm
R208	24366101	CF, 100 ohm
R209	24366101	CF, 100 ohm
R212	24366472	CF, 4700 ohm
R213	24366122	CF, 1200 ohm
R214	24366222	CF, 2200 ohm
R215	24366102	CF, 1k ohm
R216	24366103	CF, 10k ohm
R217	24366102	CF, 1k ohm
R218	24367682	CF, 6800 ohm, $\pm$ 2%
R220	24366102	CF, 1k ohm
R221	24366102	CF, 1k ohm
R223	24366102	CF, 1k ohm
R227	24367562	CF, 5600 ohm, $\pm$ 2%
R260	24366153	CF, 15k ohm
R261	24366682	CF, 6800 ohm
R266	24366102	CF, 1k ohm
R267	24366102	CF, 1k ohm
R268	24366681	CF, 680 ohm
R269	24366102	CF, 1k ohm
R270	24366682	CF, 6800 ohm
R301	24366102	CF, 1k ohm
R303	24321129	MF, 1.2 ohm, 1/2W
R304	24366513	CF, 51k ohm
R305	24322628	MF, 0.62 ohm, 1W
R306	24366104	CF, 100k ohm
R307	24366474	CF, 470k ohm
R310	24382221	OMF, 220 ohm, 1W
R312	24366152	CF, 1500 ohm
R313	24366563	CF, 56k ohm
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366204	CF, 200k ohm
R318	24366101	CF, 100 ohm
R319	24366101	CF, 100 ohm
R320	24366101	CF, 100 ohm
R327	24339569	MF, 5.6 ohm, 2W
R329	24366203	CF, 20k ohm
R330	24366102	CF, 1k ohm
R331	24366104	CF, 100k ohm
R336	24383221	OMF, 220 ohm, 2W
R341	24366153	CF, 15k ohm
R343	24366183	CF, 18k ohm
R344	24383102	OMF, 1k ohm, 2W

Location No.	Part No.	Description
R370	24321109	MF, 1 ohm, 1/2W
R371	24366682	CF, 6800 ohm
R372	24366562	CF, 5600 ohm
R373	24366102	CF, 1k ohm
R374	24366163	CF, 16k ohm
R379	24382103	OMF, 10k ohm, 1W
R380	24946226	CC, 22M ohm, $\pm$ 10%, 1/2W
R389	24366822	CF, 8200 ohm
R390	24366123	CF, 12k ohm
R391	24366754	CF, 750k ohm
R392	24552102	OMF, 1k ohm, 1/2W
R393	24366103	CF, 10k ohm
R394	24366103	CF, 10k ohm
R395	24366752	CF, 7500 ohm
R396	24366103	CF, 10k ohm
R397	24366103	CF, 10k ohm
R398	24366123	CF, 12k ohm
R401	24366391	CF, 390 ohm
R402	24366103	CF, 10k ohm
R403	24366302	CF, 3k ohm
R405	24553682	OMF, 6800 ohm, 1W
R407	24366103	CF, 10k ohm
R410	24366331	CF, 330 ohm
R411	24366331	CF, 330 ohm
R413	24366102	CF, 1k ohm
R415	24553272	OMF, 2700 ohm, 1W
R416	24510432	Cement, 4300 ohm, 5W
R424	24545278	FR, 0.27 ohm, 1/4W
R425	24552332	OMF, 3300 ohm, 1/2W
R426	24366821	CF, 820 ohm
R427	24366392	CF, 3900 ohm
R428	24366561	CF, 560 ohm
R429	24552560	OMF, 56 ohm, 1/2W
R432	24531560	FR, 56 ohm, 1/2W
R433	24366472	CF, 4700 ohm
R441	24532102	FR, 1k ohm, 1W
R445	24546229	FR, 2.2 ohm, 1/2W
R460	24552332	OMF, 3300 ohm, 1/2W
R461	24552472	OMF, 4700 ohm, 1/2W
R463	24322479	MF, 4.7 ohm, 1W
R464	24366273	CF, 27k ohm
R465	24366114	CF, 110k ohm
R466	24366562	CF, 5600 ohm
R469	24000211	FR, 15 ohm, 1/2W
R470	24338568	MF, 0.56 ohm, 1W
R471	24553301	OMF, 300 ohm, 1W
R472	24553270	OMF, 27 ohm, 1W
R473	24366104	CF, 100k ohm
R474	24366104	CF, 100k ohm
R478	24376333	CF, 33k ohm, 1/2W
R479	24553131	OMF, 130 ohm, 1W
R480	24552222	OMF, 2200 ohm, 1/2W
R481	24366223	CF, 22k ohm
R482	24366223	CF, 22k ohm
R487	24366154	CF, 150k ohm
R488	24366563	CF, 56k ohm
R491	24366472	CF, 4700 ohm
R501	24366223	CF, 22k ohm
R502	24366101	CF, 100 ohm
R503	24366101	CF, 100 ohm
R504	24366101	CF, 100 ohm
R505	24366102	CF, 1k ohm
R506	24366103	CF, 10k ohm
R508	24366102	CF, 1k ohm

Location No.	Part No.	Description
R509	24366102	CF, 1k ohm
R510	24366102	CF, 1k ohm
R511	24366101	CF, 100 ohm
R512	24366101	CF, 100 ohm
R514	24366122	CF, 1200 ohm
R515	24366103	CF, 10k ohm
R612	24366103	CF, 10k ohm
R613	24366222	CF, 2200 ohm
R668	24366122	CF, 1200 ohm
R669	24366183	CF, 18k ohm
R670	24366103	CF, 10k ohm
R671	24366222	CF, 2200 ohm
R672	24366103	CF, 10k ohm
R673	24366222	CF, 2200 ohm
R675	24366103	CF, 10k ohm
R676	24366223	CF, 22k ohm
R677	24366223	CF, 22k ohm
R680	24366473	CF, 47k ohm
R682	24366104	CF, 100k ohm
R683	24366333	CF, 33k ohm
R684	24366229	CF, 2.2 ohm
R685	24366229	CF, 2.2 ohm
R686	24366229	CF, 2.2 ohm
R702	24366681	CF, 680 ohm
R709	24366563	CF, 56k ohm
R713	24366393	CF, 39k ohm
R714	24552121	OMF, 120 ohm, 1/2W
R715	24366273	CF, 27k ohm
R716	24366333	CF, 33k ohm
R717	24366333	CF, 33k ohm
R718	24366101	CF, 100 ohm
R719	24366392	CF, 3900 ohm
R720	24366392	CF, 3900 ohm
R722	24366102	CF, 1k ohm
R723	24366471	CF, 470 ohm
R724	24366820	CF, 82 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552331	OMF, 330 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24366620	CF, 62 ohm
R737	24366152	CF, 1500 ohm
R738	24366102	CF, 1k ohm
R739	24366152	CF, 1500 ohm
R740	24366620	CF, 62 ohm
R741	24366279	CF, 2.7 ohm
R742	24366279	CF, 2.7 ohm
R743	24554221	OMF, 220 ohm, 2W
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R808	24019002	Thermistor, 7 ohm, AC140V
R810	24007874	Cement, 1 ohm, 15W
R811	24007416	Cement, 82 ohm, 5W
R831	24366821	CF, 820 ohm
R832	24548399	FR, 3.9 ohm, 2W
R861	24382223	OMF, 22k ohm, 1W
R862	24552330	OMF, 33 ohm, 1/2W
R864	24552102	OMF, 1k ohm, 1/2W
R865	24552101	OMF, 100 ohm, 1/2W
R867	24366273	CF, 27k ohm
R868	24552101	OMF, 100 ohm, 1/2W

Location No.	Part No.	Description
R870	24381331	OMF, 330 ohm, 1/2W
R871	24381121	OMF, 120 ohm, 1/2W
R872	24382104	OMF, 100k ohm, 1W
R883	24381472	OMF, 4700 ohm, 1/2W
R884	24366102	CF, 1k ohm
R890	24382333	OMF, 33k ohm, 1W
R891	24366102	CF, 1k ohm
R898	24002000	CC, 3.9M ohm, $\pm 10\%$, 1/2W
R901	24376561	CF, 560 ohm, 1/2W
R902	24376561	CF, 560 ohm, 1/2W
R903	24376561	CF, 560 ohm, 1/2W
R904	24366103	CF, 10k ohm
R905	24366101	CF, 100 ohm
R909	24366222	CF, 2200 ohm
R912	24366102	CF, 1k ohm
R914	24366561	CF, 560 ohm
R915	24366101	CF, 100 ohm
R916	24366470	CF, 47 ohm
R917	24366471	CF, 470 ohm
R918	24366820	CF, 82 ohm
R919	24366102	CF, 1k ohm
R920	24000945	FR, 1.8 ohm, 2W
R921	24366561	CF, 560 ohm
R922	24366101	CF, 100 ohm
R924	24366820	CF, 82 ohm
R925	24366471	CF, 470 ohm
R926	24366102	CF, 1k ohm
R928	24366561	CF, 560 ohm
R929	24366101	CF, 100 ohm
R930	24366820	CF, 82 ohm
R932	24366272	CF, 2700 ohm
R933	24366750	CF, 75 ohm
R934	24366391	CF, 390 ohm
R935	24366821	CF, 820 ohm
R937	24366471	CF, 470 ohm
R939	24366101	CF, 100 ohm
R942	24366392	CF, 3900 ohm
R943	24366392	CF, 3900 ohm
R944	24366392	CF, 3900 ohm
R945	24366470	CF, 47 ohm
R946	24366470	CF, 47 ohm
R960	24383153	OMF, 15k ohm, 2W
R961	24383153	OMF, 15k ohm, 2W
R962	24383153	OMF, 15k ohm, 2W
R963	24383153	OMF, 15k ohm, 2W
R964	24383153	OMF, 15k ohm, 2W
R965	24383153	OMF, 15k ohm, 2W
R977	24366122	CF, 1200 ohm
R980	24366471	CF, 470 ohm
R981	24366821	CF, 820 ohm
R982	24366103	CF, 10k ohm
R983	24366222	CF, 2200 ohm
R984	24367152	CF, 1500 ohm, $\pm 2\%$
R985	24367471	CF, 470 ohm, $\pm 2\%$
R986	24367681	CF, 680 ohm, $\pm 2\%$
R987	24367681	CF, 680 ohm, $\pm 2\%$
R988	24367472	CF, 4700 ohm, $\pm 2\%$
R989	24367332	CF, 3300 ohm, $\pm 2\%$
R990	24366242	CF, 2400 ohm
R991	24367681	CF, 680 ohm, $\pm 2\%$
R992	24366150	CF, 15 ohm
R3440	24338129	MF, 1.2 ohm, 1W
R3442	24005016	Metal-Glazed Resistor, 180k ohm, 1/2W

Location No.	Part No.	Description
R3443	24005016	Metal-Glazed Resistor, 180k ohm, 1/2W
R3444	24005016	Metal-Glazed Resistor, 180k ohm, 1/2W
R3445	24005016	Metal-Glazed Resistor, 180k ohm, 1/2W
RA03	24366102	CF, 1k ohm
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA06	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA09	24366102	CF, 1k ohm
RA10	24366102	CF, 1k ohm
RA13	24366103	CF, 10k ohm
RA14	24366102	CF, 1k ohm
RA15	24366102	CF, 1k ohm
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA19	24366102	CF, 1k ohm
RA20	24366102	CF, 1k ohm
RA21	24366102	CF, 1k ohm
RA22	24366331	CF, 330 ohm
RA23	24366331	CF, 330 ohm
RA24	24366331	CF, 330 ohm
RA25	24366332	CF, 3300 ohm
RA33	24366102	CF, 1k ohm
RA34	24366102	CF, 1k ohm
RA35	24366102	CF, 1k ohm
RA36	24366103	CF, 10k ohm
RA37	24366101	CF, 100 ohm
RA38	24366101	CF, 100 ohm
RA40	24366101	CF, 100 ohm
RA41	24366101	CF, 100 ohm
RA42	24366102	CF, 1k ohm
RA57	24366223	CF, 22k ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA75	24366333	CF, 33k ohm
RA76	24366103	CF, 10k ohm
RA77	24366223	CF, 22k ohm
RA78	24366683	CF, 68k ohm
RA81	24366101	CF, 100 ohm
RA83	24366101	CF, 100 ohm
RB01	24366271	CF, 270 ohm
RB03	24366101	CF, 100 ohm
RB09	24366470	CF, 47 ohm
RB10	24366153	CF, 15k ohm
RB11	24366103	CF, 10k ohm
RB11	24366153	CF, 15k ohm
RB12	24366332	CF, 3300 ohm
RB13	24366332	CF, 3300 ohm
RB22	24366331	CF, 330 ohm
RB23	24366331	CF, 330 ohm
RB24	24366331	CF, 330 ohm
RB25	24366331	CF, 330 ohm
RB26	24366102	CF, 1k ohm
RB27	24366102	CF, 1k ohm
RB30	24366103	CF, 10k ohm

Location No.	Part No.	Description
RB30	24366472	CF, 4700 ohm
RB32	24366274	CF, 270k ohm
RB33	24366123	CF, 12k ohm
RB34	24366392	CF, 3900 ohm
RB35	24366102	CF, 1k ohm
RB35	24366103	CF, 10k ohm
RB37	24366302	CF, 3k ohm
RB38	24366103	CF, 10k ohm
RB40	24366103	CF, 10k ohm
RB41	24366273	CF, 27k ohm
RB41	24366681	CF, 680 ohm
RB42	24366102	CF, 1k ohm
RB42	24366273	CF, 27k ohm
RB43	24366103	CF, 10k ohm
RB44	24366103	CF, 10k ohm
RB45	24366101	CF, 100 ohm
RB46	24366103	CF, 10k ohm
RB47	24366181	CF, 180 ohm
RB48	24366101	CF, 100 ohm
RB49	24366331	CF, 330 ohm
RB50	24366101	CF, 100 ohm
RB51	24366101	CF, 100 ohm
RB75	24366472	CF, 4700 ohm
RB76	24366101	CF, 100 ohm
RB77	24366222	CF, 2200 ohm
RB78	24366101	CF, 100 ohm
RB81	24366122	CF, 1200 ohm
RB82	24366123	CF, 12k ohm
RB83	24366123	CF, 12k ohm
RB84	24366562	CF, 5600 ohm
RB90	24366392	CF, 3900 ohm
RB91	24366473	CF, 47k ohm
RB92	24366271	CF, 270 ohm
RB93	24366271	CF, 270 ohm
RB94	24366222	CF, 2200 ohm
RB95	24366222	CF, 2200 ohm
RB96	24366273	CF, 27k ohm
RB97	24366273	CF, 27k ohm
RB98	24366102	CF, 1k ohm
RB330	24366103	CF, 10k ohm
RB370	24366101	CF, 100 ohm
RB380	24366101	CF, 100 ohm
RB400	24366153	CF, 15k ohm
RB401	24366153	CF, 15k ohm
RB402	24366332	CF, 3300 ohm
RB403	24366332	CF, 3300 ohm
RD09	24366101	CF, 100 ohm
RD11	24366101	CF, 100 ohm
RD13	24366222	CF, 2200 ohm
RD14	24366103	CF, 10k ohm
RD16	24366103	CF, 10k ohm
RM16	24366101	CF, 100 ohm
RM18	24366102	CF, 1k ohm
RR01	24366102	CF, 1k ohm
RR02	24366104	CF, 100k ohm
RR03	24366222	CF, 2200 ohm
RR04	24366101	CF, 100 ohm
RR06	24366102	CF, 1k ohm
RR07	24366102	CF, 1k ohm
RR08	24366332	CF, 3300 ohm
RR09	24366222	CF, 2200 ohm
RR10	24366102	CF, 1k ohm
RR11	24366272	CF, 2700 ohm
RR12	24366152	CF, 1500 ohm

Location No.	Part No.	Description
RR13	24366152	CF, 1500 ohm
RR14	24366152	CF, 1500 ohm
RR15	24366391	CF, 390 ohm
RR16	24366391	CF, 390 ohm
RR17	24366391	CF, 390 ohm
RR18	24366102	CF, 1k ohm
RR19	24366102	CF, 1k ohm
RR20	24366102	CF, 1k ohm
RR21	24366102	CF, 1k ohm
RR22	24366222	CF, 2200 ohm
RR23	24366223	CF, 22k ohm
RR24	24366102	CF, 1k ohm
RR25	24366101	CF, 100 ohm
RR26	24366222	CF, 2200 ohm
RR27	24366681	CF, 680 ohm
RR28	24366681	CF, 680 ohm
RR29	24366681	CF, 680 ohm
RR30	24366222	CF, 2200 ohm
RR31	24366222	CF, 2200 ohm
RR32	24366222	CF, 2200 ohm
RR33	24366822	CF, 8200 ohm
RR34	24366822	CF, 8200 ohm
RR35	24366822	CF, 8200 ohm
RR36	24366102	CF, 1k ohm
RR37	24366102	CF, 1k ohm
RR38	24366102	CF, 1k ohm
RR39	24366222	CF, 2200 ohm
RR40	24366101	CF, 100 ohm
RR40	24366102	CF, 1k ohm
RR41	24366332	CF, 3300 ohm
RR42	24366101	CF, 100 ohm
RR44	24366101	CF, 100 ohm
RR46	24366103	CF, 10k ohm
RR46	24366222	CF, 2200 ohm
RR47	24366222	CF, 2200 ohm
RR48	24366222	CF, 2200 ohm
RR50	24366103	CF, 10k ohm
RR51	24366103	CF, 10k ohm
RR85	24366222	CF, 2200 ohm
RS02	24366472	CF, 4700 ohm
RS04	24366222	CF, 2200 ohm
RS06	24366222	CF, 2200 ohm
RS07	24366682	CF, 6800 ohm
RS08	24366682	CF, 6800 ohm
RS12	24366682	CF, 6800 ohm
RS21	24366104	CF, 100k ohm
RS22	24366104	CF, 100k ohm
RS25	24366223	CF, 22k ohm
RS26	24366223	CF, 22k ohm
RS27	24366471	CF, 470 ohm
RS28	24366471	CF, 470 ohm
RS29	24366104	CF, 100k ohm
RS30	24366104	CF, 100k ohm
RS31	24366103	CF, 10k ohm
RS33	24366222	CF, 2200 ohm
RS34	24366222	CF, 2200 ohm
RS35	24366682	CF, 6800 ohm
RS36	24366682	CF, 6800 ohm
RS37	24366101	CF, 100 ohm
RS40	24366101	CF, 100 ohm
RS42	24366101	CF, 100 ohm
RS48	24366101	CF, 100 ohm
RS49	24366682	CF, 6800 ohm
RS51	24366682	CF, 6800 ohm

Location No.	Part No.	Description
RS52	24366682	CF, 6800 ohm
RS101	24366822	CF, 8200 ohm
RS102	24366822	CF, 8200 ohm
RS103	24366103	CF, 10k ohm
RS104	24366104	CF, 100k ohm
RS105	24366332	CF, 3300 ohm
RS107	24366473	CF, 47k ohm
RS108	24366473	CF, 47k ohm
RS109	24366153	CF, 15k ohm
RS110	24366101	CF, 100 ohm
RS111	24366222	CF, 2200 ohm
RS112	24366223	CF, 22k ohm
RS113	24366153	CF, 15k ohm
RS114	24366101	CF, 100 ohm
RS115	24366222	CF, 2200 ohm
RS116	24366223	CF, 22k ohm
RV01	24366750	CF, 75 ohm
RV03	24366750	CF, 75 ohm
RV05	24366750	CF, 75 ohm
RV06	24366102	CF, 1k ohm
RV07	24366750	CF, 75 ohm
RV08	24366103	CF, 10k ohm
RV09	24366750	CF, 75 ohm
RV10	24366103	CF, 10k ohm
RV11	24366750	CF, 75 ohm
RV12	24366102	CF, 1k ohm
RV13	24366750	CF, 75 ohm
RV14	24366750	CF, 75 ohm
RV15	24366750	CF, 75 ohm
RV19	24366101	CF, 100 ohm
RV20	24366101	CF, 100 ohm
RV29	24366100	CF, 10 ohm
RV31	24366100	CF, 10 ohm
RV34	24366100	CF, 10 ohm
RV37	24366100	CF, 10 ohm
RV39	24366100	CF, 10 ohm
RV40	24366822	CF, 8200 ohm
RV41	24366562	CF, 5600 ohm
RV42	24366561	CF, 560 ohm
RV43	24366471	CF, 470 ohm
RV44	24366471	CF, 470 ohm
RV45	24366222	CF, 2200 ohm
RV46	24366102	CF, 1k ohm
RV47	24366102	CF, 1k ohm
RV48	24366102	CF, 1k ohm
RV49	24366102	CF, 1k ohm
RV60	24366682	CF, 6800 ohm
RV62	24366101	CF, 100 ohm
RV63	24552221	OMF, 220 ohm, 1/2W
RV64	24366750	CF, 75 ohm
RV89	24366750	CF, 75 ohm
RW01	24366683	CF, 68k ohm
RW02	24366473	CF, 47k ohm
RW03	24366333	CF, 33k ohm
RW04	24366223	CF, 22k ohm
RW05	24366102	CF, 1k ohm
RW06	24366101	CF, 100 ohm
RW07	24366222	CF, 2200 ohm
RW08	24366101	CF, 100 ohm
RW10	24366102	CF, 1k ohm
RW14	24366101	CF, 100 ohm
RW16	24366101	CF, 100 ohm
RW18	24366103	CF, 10k ohm
RW19	24366473	CF, 47k ohm

Location No.	Part No.	Description
RW20	24366101	CF, 100 ohm
RW24	24366471	CF, 470 ohm
RW26	24366682	CF, 6800 ohm
RW27	24366682	CF, 6800 ohm
RW28	24366751	CF, 750 ohm
RW29	24366102	CF, 1k ohm
RW30	24366102	CF, 1k ohm
RW38	24366472	CF, 4700 ohm
RW40	24366222	CF, 2200 ohm
RY10	24366101	CF, 100 ohm
RY11	24366222	CF, 2200 ohm
RY12	24366221	CF, 220 ohm
RY13	24366102	CF, 1k ohm
RY14	24366152	CF, 1500 ohm
RY15	24366101	CF, 100 ohm
RY80	24366331	CF, 330 ohm
RY81	24366101	CF, 100 ohm
RY82	24366102	CF, 1k ohm
RY83	24366100	CF, 10 ohm
RZ30	24366102	CF, 1k ohm

COILS & TRANSFORMERS

L102	23289844	Coil, Peaking, TRF4470AT
L111	23238562	Coil, Peaking, TRF4109AJ
L112	23238562	Coil, Peaking, TRF4109AJ
L115	23103852	Coil, Filter, TEM2028AH
L131	23289842	Coil, Peaking, TRF4220AT
L301	23103859	Coil (Ferrite Bead), TEM2011
L302	23237975	Coil, Peaking, TRF4101AC
L400	23289840	Coil, Peaking, TRF4100AT
△L441	23233941	Coil, Linearity, TLN2157G
L442	23248122	Coil, Choke, TLN3384D
△L461	23248179	Coil, Choke, TLN3339AD
L463	23103859	Coil (Ferrite Bead), TEM2011
L501	23289844	Coil, Peaking, TRF4470AT
L502	23289844	Coil, Peaking, TRF4470AT
L503	23289470	Coil, Peaking, TRF4470AF
L702	23261974	Coil, Choke, HC5-035
L704	23103859	Coil (Ferrite Bead), TEM2011
L705	23103859	Coil (Ferrite Bead), TEM2011
L805	23248213	Coil, Choke, TLN3481AH
L806	23248213	Coil, Choke, TLN3481AH
L861	23103880	Coil (Ferrite Bead), TEM2011Y
L862	23103880	Coil (Ferrite Bead), TEM2011Y
L883	23103880	Coil (Ferrite Bead), TEM2011Y
L884	23103880	Coil (Ferrite Bead), TEM2011Y
L885	23248073	Coil, Choke, TLN3299D
L886	23103880	Coil (Ferrite Bead), TEM2011Y
L887	23103880	Coil (Ferrite Bead), TEM2011Y
L888	23280016	Coil, Peaking, TRF4100AZ
L889	23280016	Coil, Peaking, TRF4100AZ
L891	23103880	Coil (Ferrite Bead), TEM2011Y
L892	23103880	Coil (Ferrite Bead), TEM2011Y
L893	23103880	Coil (Ferrite Bead), TEM2011Y
L894	23103880	Coil (Ferrite Bead), TEM2011Y
L901	23200287	Coil, Degaussing, TSB-2355CT
L902	23289101	Coil, Peaking, TRF4101AF
L903	23289101	Coil, Peaking, TRF4101AF
L904	23289101	Coil, Peaking, TRF4101AF
L905	23289390	Coil, Peaking, TRF4390AF
L906	23289390	Coil, Peaking, TRF4390AF
L907	23289390	Coil, Peaking, TRF4390AF
L908	23289100	Coil, Peaking, TRF4100AF
L910	23237991	Coil, Peaking, TRF4479AC

Location No.	Part No.	Description
LA01	23289840	Coil, Peaking, TRF4100AT
LB44	23289840	Coil, Peaking, TRF4100AT
LR01	23237999	Coil, Peaking, TRF4109AC
LR02	23237999	Coil, Peaking, TRF4109AC
LV02	23289840	Coil, Peaking, TRF4100AT
LV05	23289857	Coil, Peaking, TRF4560AT
LV11	23289857	Coil, Peaking, TRF4560AT
LV27	23103852	Coil, Filter, TEM2028AH
LV38	23289855	Coil, Peaking, TRF4270AT
LV40	23289840	Coil, Peaking, TRF4100AT
LV41	23289841	Coil, Peaking, TRF4150AT
LV60	23289840	Coil, Peaking, TRF4100AT
LV61	23289840	Coil, Peaking, TRF4100AT
LW07	23289842	Coil, Peaking, TRF4220AT
LY80	23103852	Coil, Filter, TEM2028AH
T401	23224367	Transformer, Horiz. Drive, TLN1098AH
△T461Z	23236492	Transformer, Flyback, TFB4132XD
T801	23211711	Line Filter, TRF3203CK
T840	23213513	Transformer, Power, TPW1459AZ
T862	23217291	Transformer, Converter, TPW3335AS

SEMICONDUCTORS

Q151	23114530	Transistor, 2SA933S, Q
Q152	23114530	Transistor, 2SA933S, Q
Q201	23114528	Transistor, 2SC1740S, Q
Q202	23114528	Transistor, 2SC1740S, Q
Q203	A6734590	Transistor, 2SC752(G)TM-Y
Q204	23114528	Transistor, 2SC1740S, Q
Q220	23904943	IC, MM1111XS
Q261	23114528	Transistor, 2SC1740S, Q
Q262	23114530	Transistor, 2SA933S, Q
Q263	23114530	Transistor, 2SA933S, Q
Q301	B0378560	IC, TA8427K
Q301B	72471082	Screw, BRDT2W3X10 SZN
Q302	B0384625	IC, TA8859CP
Q370	23114530	Transistor, 2SA933S, Q
Q390	B0350510	IC, TA75558S
Q391	23314548	Transistor, 2SC4256
Q402	A6330069	Transistor, 2CS2482 FA-1
Q404	A6873777	Transistor, 2SD2553
Q404B	72471082	Screw, BRDT2W3X10 SZN
Q420	23314141	Transistor, 2SC3852
Q420B	70391356	Screw, BITTB3X10 SZN
Q421	23114528	Transistor, 2SC1740S, Q
Q430	23314445	Transistor, 2SC4721, Q
Q460	A6625365	Transistor, 2SB688-O(BS)
Q460B	72471082	Screw, BRDT2W3X10 SZN
Q461	23114528	Transistor, 2SC1740S, Q
Q462	23114528	Transistor, 2SC1740S, Q
Q470	23114528	Transistor, 2SC1740S, Q
Q501	B0385677	IC, TA1222BN
Q502	23114528	Transistor, 2SC1740S, Q
Q503	23114528	Transistor, 2SC1740S, Q
Q610	B0377308	IC, TA8256BH
Q610B	70391355	Screw, BITTB3X8 SZN
Q612	23314962	Transistor, KTA1266 Y
Q670	A6342200	Transistor, 2CS2878-A
Q671	A6342200	Transistor, 2CS2878-A
Q672	A6342200	Transistor, 2CS2878-A
Q706	23114528	Transistor, 2SC1740S, Q

Location No.	Part No.	Description
Q707	A6734590	Transistor, 2SC752(G)TM-Y
Q709	23114528	Transistor, 2SC1740S, Q
Q710	23114530	Transistor, 2SA933S, Q
Q711	23314911	Transistor, 2SB1569A E
Q712	23314914	Transistor, 2SD2400A E
Q719	23114528	Transistor, 2SC1740S, Q
Q720	23114528	Transistor, 2SC1740S, Q
Q801	23906541	IC, STR-Z4216
Q801B	23476828	Bracket
Q830	23314141	Transistor, 2SC3852
Q830B	70391356	Screw, BITTB3X10 SZN
Q840	23318299	IC, L78MR05
Q843	A6002050	Transistor, RN1205
Q862	A8643112	Photo Coupler, TLP621(GRL-L
Q901	A6368700	Transistor, 2CS4544
Q902	23114528	Transistor, 2SC1740S, Q
Q903	A6368700	Transistor, 2CS4544
Q904	23114528	Transistor, 2SC1740S, Q
Q905	A6368700	Transistor, 2CS4544
Q906	23114528	Transistor, 2SC1740S, Q
Q907	A6509140	Transistor, 2SA562TM-Y
Q908	A6321240	Transistor, 2SC2120-Y
Q910	23114528	Transistor, 2SC1740S, Q
Q911	23114528	Transistor, 2SC1740S, Q
Q912	23114530	Transistor, 2SA933S, Q
Q913	23114530	Transistor, 2SA933S, Q
Q914	23114528	Transistor, 2SC1740S, Q
QA02	23905665	IC, AT24C08-10PC
QB01	23114528	Transistor, 2SC1740S, Q
QB03	A6002050	Transistor, RN1205
QB13	23114530	Transistor, 2SA933S, Q
QB30	23114528	Transistor, 2SC1740S, Q
QB40	23114528	Transistor, 2SC1740S, Q
QB41	23114530	Transistor, 2SA933S, Q
QB42	23114530	Transistor, 2SA933S, Q
QB43	23114528	Transistor, 2SC1740S, Q
QB44	A6002040	Transistor, RN1204
QB77	23114528	Transistor, 2SC1740S, Q
QB81	A6342200	Transistor, 2CS2878-A
QB82	A6342200	Transistor, 2CS2878-A
QB83	23114530	Transistor, 2SA933S, Q
QB84	23114528	Transistor, 2SC1740S, Q
QB85	23114530	Transistor, 2SA933S, Q
QB86	23114530	Transistor, 2SA933S, Q
QB87	23114530	Transistor, 2SA933S, Q
QB88	23114530	Transistor, 2SA933S, Q
QB400	23114530	Transistor, 2SA933S, Q
QD01	B0377277	IC, TA8173AP
QM03	23114528	Transistor, 2SC1740S, Q
QR01	23906910	IC, MB90096-179
QR02	23114528	Transistor, 2SC1740S, Q
QR03	23114530	Transistor, 2SA933S, Q
QR04	70119743	IC, PST523D
QR05	B0487584	IC, TC74HC4053AP
QR06	23114528	Transistor, 2SC1740S, Q
QR07	23114528	Transistor, 2SC1740S, Q
QR08	23114530	Transistor, 2SA933S, Q
QR09	23114530	Transistor, 2SA933S, Q
QR10	23114530	Transistor, 2SA933S, Q
QR11	23114530	Transistor, 2SA933S, Q
QR12	23114530	Transistor, 2SA933S, Q
QR13	23114530	Transistor, 2SA933S, Q
QS01	A6342200	Transistor, 2CS2878-A
QS11	A6342200	Transistor, 2CS2878-A

Location No.	Part No.	Description
QS12	A6012040	Transistor, RN2204
QS13	23314965	Transistor, KTC3198 Y
QS14	23314965	Transistor, KTC3198 Y
QS101	23904303	IC, BA10358
QS102	A6012040	Transistor, RN2204
QS103	A6342200	Transistor, 2CS2878-A
QS104	A6342200	Transistor, 2CS2878-A
QV01	23906364	IC, MM1313BD
QV02	23904943	IC, MM1111XS
QV40	23114528	Transistor, 2SC1740S, Q
QV41	23114528	Transistor, 2SC1740S, Q
QV42	23114530	Transistor, 2SA933S, Q
QV43	23114530	Transistor, 2SA933S, Q
QV60	23114528	Transistor, 2SC1740S, Q
QW01	B0470532	IC, TC4053BP
QW02	23114528	Transistor, 2SC1740S, Q
QW03	23114528	Transistor, 2SC1740S, Q
QW04	23114528	Transistor, 2SC1740S, Q
QW05	23114528	Transistor, 2SC1740S, Q
QW10	23114530	Transistor, 2SA933S, Q
QW11	23114528	Transistor, 2SC1740S, Q
QW16	23114530	Transistor, 2SA933S, Q
QW17	A6002010	Transistor, RN1201
QW18	23114530	Transistor, 2SA933S, Q
QY10	23114528	Transistor, 2SC1740S, Q
QY11	23114528	Transistor, 2SC1740S, Q
QY12	A6002040	Transistor, RN1204
QY13	23114528	Transistor, 2SC1740S, Q
QY80	23114528	Transistor, 2SC1740S, Q
QZ11	23114528	Transistor, 2SC1740S, Q
D101	23316411	Diode, Zener, HZT33-12
D201	23118859	Diode, 1SS133
D215	23118859	Diode, 1SS133
D216	23118859	Diode, 1SS133
D217	23118859	Diode, 1SS133
D218	23118859	Diode, 1SS133
D219	23118859	Diode, 1SS133
D220	23118859	Diode, 1SS133
D301	23118094	Diode, EU2A, LF-F10
D302	23118094	Diode, EU2A, LF-F10
D306	23118859	Diode, 1SS133
D308	23118822	Diode, ERB12-02
D309	23118822	Diode, ERB12-02
D312	23118859	Diode, 1SS133
D370	23316648	Diode, Zener, MTZJ2.2A
D390	23316677	Diode, Zener, MTZJ6.8A
D401	23316719	Diode, Zener, MTZJ12B
D406	A7978850	Diode, S5295G
D420	23316680	Diode, Zener, MTZJ7.5A
D430	23316689	Diode, Zener, MTZJ10A
D441	23316687	Diode, Zener, MTZJ9.1B
D460	A7568480	Diode, TVR1G
D461	23316582	Diode, ERC20-06
D463	23118859	Diode, 1SS133
D464	23316718	Diode, Zener, MTZJ12A
D465	23316672	Diode, Zener, MTZJ5.6B
D466	23316672	Diode, Zener, MTZJ5.6B
D467	A7568719	Diode, 1S1887
D468	23316718	Diode, Zener, MTZJ12A
D470	23118859	Diode, 1SS133
D471	A7568460	Diode, TVR-1B
D474	23316719	Diode, Zener, MTZJ12B
D490	23316718	Diode, Zener, MTZJ12A
D512	23118859	Diode, 1SS133

Location No.	Part No.	Description
D611	23118859	Diode, 1SS133
D612	23118859	Diode, 1SS133
D613	23118859	Diode, 1SS133
D614	23118859	Diode, 1SS133
D670	23118859	Diode, 1SS133
D671	23118859	Diode, 1SS133
D674	23118859	Diode, 1SS133
D675	23118859	Diode, 1SS133
D704	23118859	Diode, 1SS133
D705	23118859	Diode, 1SS133
D715	23118859	Diode, 1SS133
D720	23118859	Diode, 1SS133
D721	23118859	Diode, 1SS133
D801	23357041	Diode, LN6SB60-F05
D801B	70391355	Screw, BITTB3X8 SZN
D830	23316673	Diode, Zener, MTZJ5.6C
D840	23316962	Diode, S1WBA20 4101
D845	23118859	Diode, 1SS133
D862	23118094	Diode, EU2A, LF-F10
D864	23316813	Diode, EG1, LF-F10
D873	23316719	Diode, Zener, MTZJ12B
D875	23316719	Diode, Zener, MTZJ12B
D876	23316747	Diode, Zener, MTZJ27C
D881	23118859	Diode, 1SS133
D883	23357018	Diode, RL2, LF-C1
D884	23357018	Diode, RL2, LF-C1
D885	23316819	Diode, RU4YX, LF015
D886	23316819	Diode, RU4YX, LF015
D891	23316819	Diode, RU4YX, LF015
D892	23316819	Diode, RU4YX, LF015
D899	24019471	Varistor, TNR10V271K2
D901	23118859	Diode, 1SS133
D903	23118859	Diode, 1SS133
D904	23118859	Diode, 1SS133
D905	23118859	Diode, 1SS133
D906	23118859	Diode, 1SS133
D907	23118859	Diode, 1SS133
D908	23118859	Diode, 1SS133
D909	23118859	Diode, 1SS133
D910	23118859	Diode, 1SS133
D911	A7568250	Diode, 1S1834
D3440	A7568200	Diode, 1S1832
D3441	A7568200	Diode, 1S1832
DA11	23118859	Diode, 1SS133
DA41	23118859	Diode, 1SS133
DA42	23316674	Diode, Zener, MTZJ6.2A
DA69	23316674	Diode, Zener, MTZJ6.2A
DB01	23358501	Diode (LED), SCL003URC5F
DB03	23358522	LED, SIR-56SB3F
DB30	23118859	Diode, 1SS133
DB40	23118859	Diode, 1SS133
DB42	23316675	Diode, Zener, MTZJ6.2B
DB45	23118859	Diode, 1SS133
DR01	23118859	Diode, 1SS133
DR02	23118859	Diode, 1SS133
DR03	23118859	Diode, 1SS133
DR04	23118859	Diode, 1SS133
DR83	23118859	Diode, 1SS133
DR84	23118859	Diode, 1SS133
DS106	23316660	Diode, Zener, MTZJ3.9A
DV01	23316686	Diode, Zener, MTZJ9.1A
DV03	23316686	Diode, Zener, MTZJ9.1A
DV05	23316686	Diode, Zener, MTZJ9.1A
DV07	23316686	Diode, Zener, MTZJ9.1A

Location No.	Part No.	Description
DV09	23316686	Diode, Zener, MTZJ9.1A
DV11	23316686	Diode, Zener, MTZJ9.1A
DV13	23316686	Diode, Zener, MTZJ9.1A
DV15	23316686	Diode, Zener, MTZJ9.1A
DV27	23316686	Diode, Zener, MTZJ9.1A
MISCELLANEOUS		
B110	23470580	Back Terminal Board
B230	23037312	Screw, BTBW 3X12 SZN
B231	23035412	Screw, BTB 4X12 SZN
B232	23035312	Screw, BTB 3X12 SZN
B233	23035312	Screw, BTB 3X12 SZN
B235	23037312	Screw, BTBW 3X12 SZN
BB40	23903022	Socket, 8P
BB41	23903022	Socket, 8P
BB50	23903022	Socket, 8P
BB51	23903022	Socket, 8P
BB60	23903022	Socket, 8P
BB61	23903022	Socket, 8P
BB80	23903022	Socket, 8P
BB81	23903022	Socket, 8P
BB90	23903022	Socket, 8P
BB91	23903022	Socket, 8P
BB100	23368517	Plug, 3P
BB111	23902749	Socket, B-B, 6P
BB400	23368627	Plug, 8P
BB500	23368627	Plug, 8P
BB600	23368627	Plug, 8P
BB800	23368627	Plug, 8P
BB900	23368627	Plug, 8P
F470	23144849	Fuse, 2.0A, 250V
F470A	23165433	Holder, Fuse
F801	23144888	Fuse, 5.0A, 125V
F801A	23165433	Holder, Fuse
F860	23144456	Fuse, 5.0A, 125V
F890	23144735	Fuse, 5.0A, 125V
F890A	23165433	Holder, Fuse
F899	23144735	Fuse, 5.0A, 125V
F899A	23165433	Holder, Fuse
G501	24366101	CF, 100 ohm
G897	23280016	Coil, Peaking, TRF4100AZ
G898	23248227	Coil, Choke, TLN3481AD
G899	23248227	Coil, Choke, TLN3481AD
G980	24005012	MF, 15 ohm, 1/2W
H002	23148349	Module, MVUS35A, US IMA SPL TMX
H003	23344421	RF Switch, RSU133X6
H003A	23740989	Nut, F-Connector
KB01	23904946	Remote Sensor, RPM-676CBR-S
M461A	23192945	Anode Cap, TCCP5162
P504	23902747	Socket, B-B, 15P
P512	23902863	Socket, B-B, 20P
P513	23902863	Socket, B-B, 20P
P801	23372071	Power Cord
PV02	23365763	Jack, Phono, 3P
PV05	23368520	Plug, B-B, 20P
PV06	23368520	Plug, B-B, 20P
S602	23145412	Switch, Slide, 2C2P
SA01	23145227	Switch, Push, 1C1P
SA02	23145227	Switch, Push, 1C1P
SA03	23145227	Switch, Push, 1C1P
SA04	23145227	Switch, Push, 1C1P
SA05	23145227	Switch, Push, 1C1P

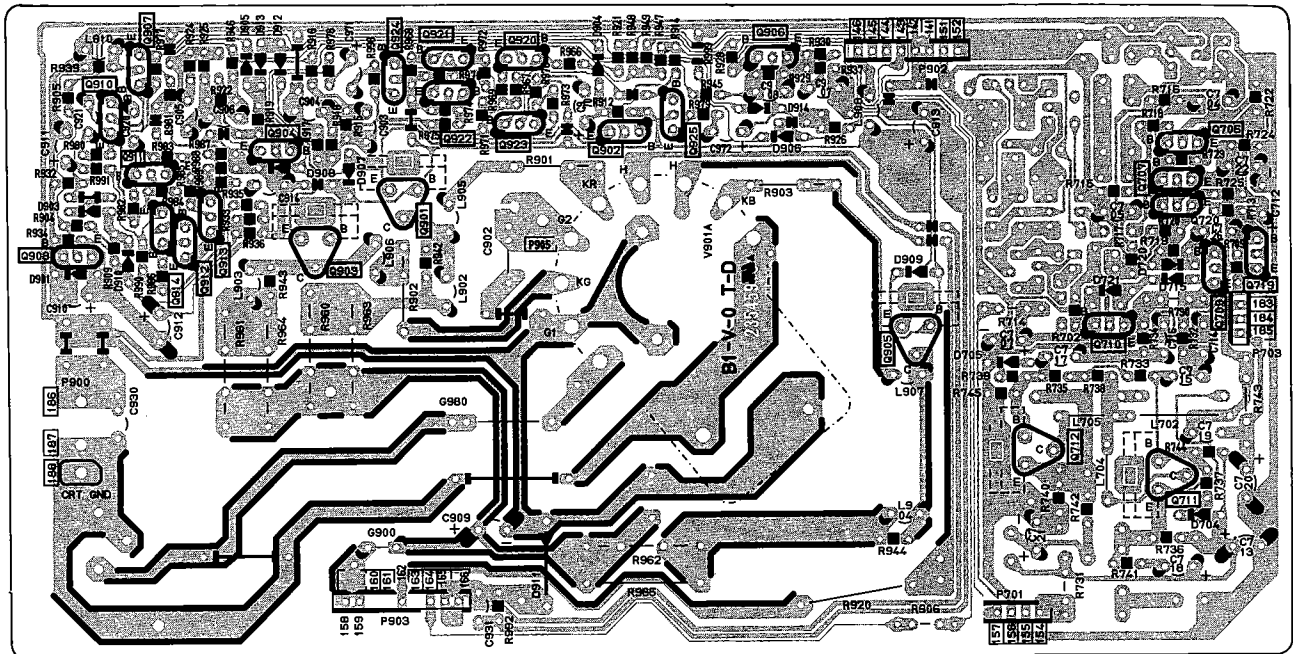
Location No.	Part No.	Description
SA06	23145227	Switch, Push, 1C1P
SA07	23145227	Switch, Push, 1C1P
SA08	23145227	Switch, Push, 1C1P
SR81	23146564	Relay, Power, DC12V
UZ01	23148339	Module, YC3D22H, YC3D22H
V901A	23902824	Socket, CRT, 10P
W661	23351086	Speaker, SPK-1358, 80x100mm, 8 ohm
W662	23351086	Speaker, SPK-1358, 80x100mm, 8 ohm
W665	23351080	Speaker, SPK-1352, 100x100mm, 6 ohm
X401	23153721	Ceramic Resonator, 503kHz, TCR1023
X501	23153961	Crystal, 3.58MHz
XA01	23153504	Ceramic Resonator, 8.00MHz, TCR1056BM
XB01	23153325	Ceramic Resonator, 8.00MHz, TCR1056
△Z801	23905010	IC, HIC1019
ZM01	23262280	Coil, IF, TRF1196D
ZT01	70108925	Resonator, 4MHz
ZY01	23148292	Module, MWUS13H, NTSC/US
PC BOARD ASSEMBLIES		
* U801		Power/DEF Board, PB8724
* U901		CRT Drive/SCAN Board, PB7829A2
* U902		Signal Board, PB8725A
* U922		CRT Drive Board, PB8725A1
* UM01		OSD Board, PB8730
* UT02		LINE TERM Board, PB8725A2
* UV01		A/V Board, PB8729A1
PICTURE TUBE		
△V901	23312734	Picture Tube, A90AHS50X01V
TUNER		
H001	23321342	Tuner, ELA22L
HY01	23321327	Tuner, EL934L3
ACCESSORIES		
K912	23306268	Remote Hand Unit, CT-9953
AT03	23588181	Battery Cover
Y101	23563658	Owner'S Manual, English, CN36Z71
Y101F	23563659	Owner'S Manual, French, CN36Z71
CABINET PARTS		
A201	23549489	Front Cover
A213	23427705	Door
A214	23451976	Push, Catch
A223	23443849	Knob, Power
A401	23003375	Back Cover
A411	23426509	Back Cover (PROPER)
A701	23525327	Container
A703	23935286	Packing, Top
A708	23935287	Packing, Bottom

Location No.	Part No.	Description
QA01	23000001	IC, TMPA8700CSN-158

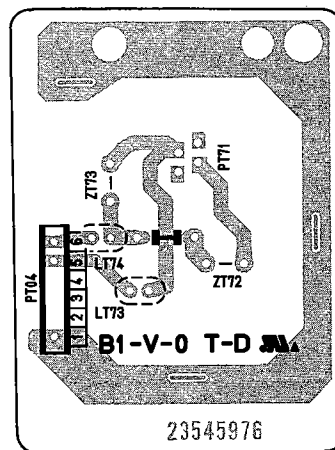
BOTTOM (FOIL) SIDE



CRT DRIVE/SCAN BOARD PB8729A-2 **BOTTOM (FOIL) SIDE**

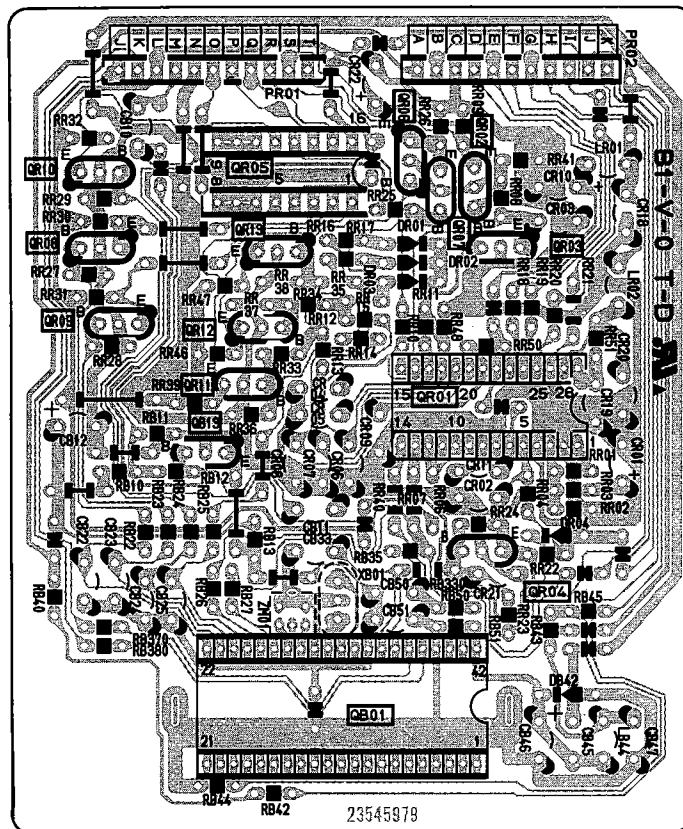


TERMINAL BOARD PB8725A-2 **BOTTOM (FOIL) SIDE**

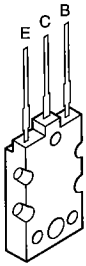


OSD BOARD PB8730

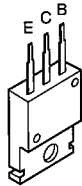
BOTTOM (FOIL) SIDE



① 2SD2253
(old)
2SC5243



② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



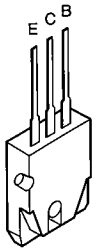
③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



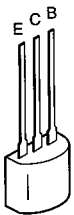
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



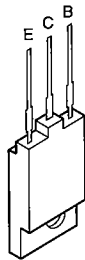
⑤ 2SA1788



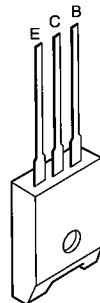
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SC5143
2SD2553



⑧ ON4409



SPECIFICATIONS	
TELEVISION SYSTEM	NTSC standard
CHANNEL COVERAGE	VHF: 2 through 13 UHF: 14 through 69 Cable TV: mid band (A-8 through A-1, A through I) super band (J through W) hyper band (AA through ZZ, AAA, BBB) ultra band (65 through 94, 100 through 125)
POWER SOURCE	120V AC, 60Hz
POWER CONSUMPTION	135 W (average)
AUDIO POWER	10W + 10W (Main) ; 13W (Sub-woofer)
SPEAKER TYPE	Two 2-3/4 x 5-1/8 inches (70 x 130mm) (Main) One 4 inches (10cm) round (Sub-woofer)
VIDEO/AUDIO TERMINALS	S-VIDEO INPUT (VIDEO 1/VIDEO 3) Y-INPUT: 1V(p-p), 75 ohm, negative sync. C-INPUT: 0.286V(p-p) (burst signal), 75 ohm VIDEO 1/VIDEO 2/VIDEO 3 INPUT VIDEO: 1V(p-p), 75 ohm, negative sync. AUDIO: 150mV(rms) (30% modulation equivalent, 47k ohm) ColorStream™ (Color Difference) VIDEO INPUT Y-INPUT: 1V (p-p), 75 ohm Cr-INPUT: 0.7 V (p-p), 75 ohm Cb-INPUT: 0.7 V (p-p), 75 ohm AUDIO: 150 mV (rms) (30% modulation equivalent, 47k ohm) VIDEO/AUDIO OUTPUT VIDEO: 1V(p-p), 75 ohm, negative sync. AUDIO: 150mV(rms) (30% modulation equivalent, 4.7k ohm) VARIABLE AUDIO OUTPUT 0-350mV(rms) (30% modulation equivalent, 4.7k ohm) AUDIO CENTER CHANNEL INPUT 1 V(rms) (30% modulation equivalent, 10k ohm)
DIMENSIONS	Width 36-39/64 inches (930mm) Height 30-47/64 inches (780.5mm) Depth 25-19/32 inches (650mm)
MASS	176.4lbs (80kg)
SUPPLIED ACCESORIES	Remote Control with 2 "AA" size alkaline batteries

* Please refer to owner's manual in detail.

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

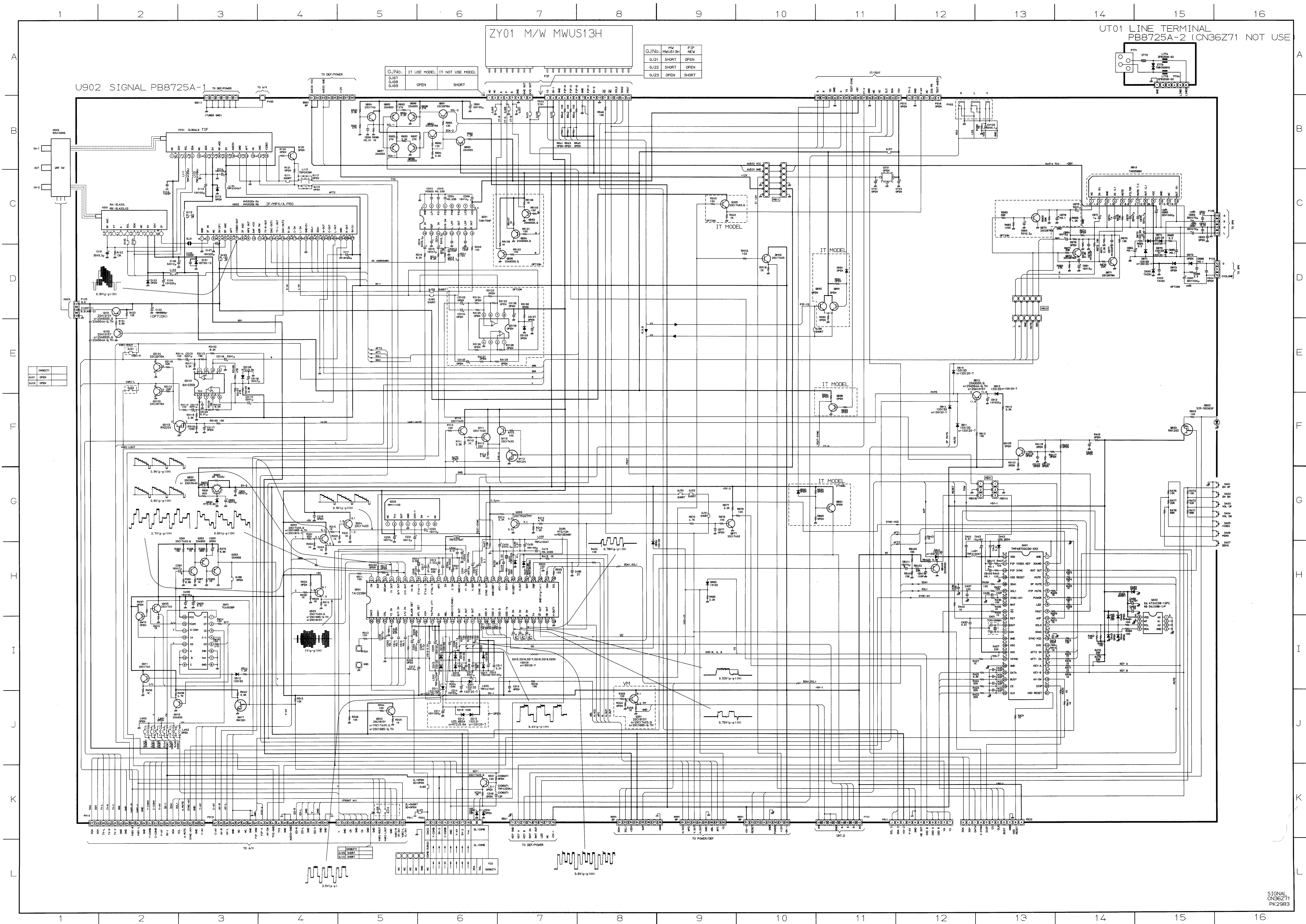
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "Δ" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

NOTE:

- RESISTOR**
Resistance is shown in ohm [K = 1,000, M = 1,000,000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon composition of 1/2 watt
1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
K = ±10% G = ±2% F = ±1%
All capacitors are ceramic 50V, unless otherwise noted as the following marks.
—||— Electrolytic capacitor —||— Mylar capacitor
- CAPACITOR**
Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF , and the values more than 1 in μF .
- The parts indicated with "Δ" have special characteristics, and should be replaced with identical parts only.

4. Voltages read with DIGITAL MULTI-METER from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage 120 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary $\pm 20\%$ except H.V.



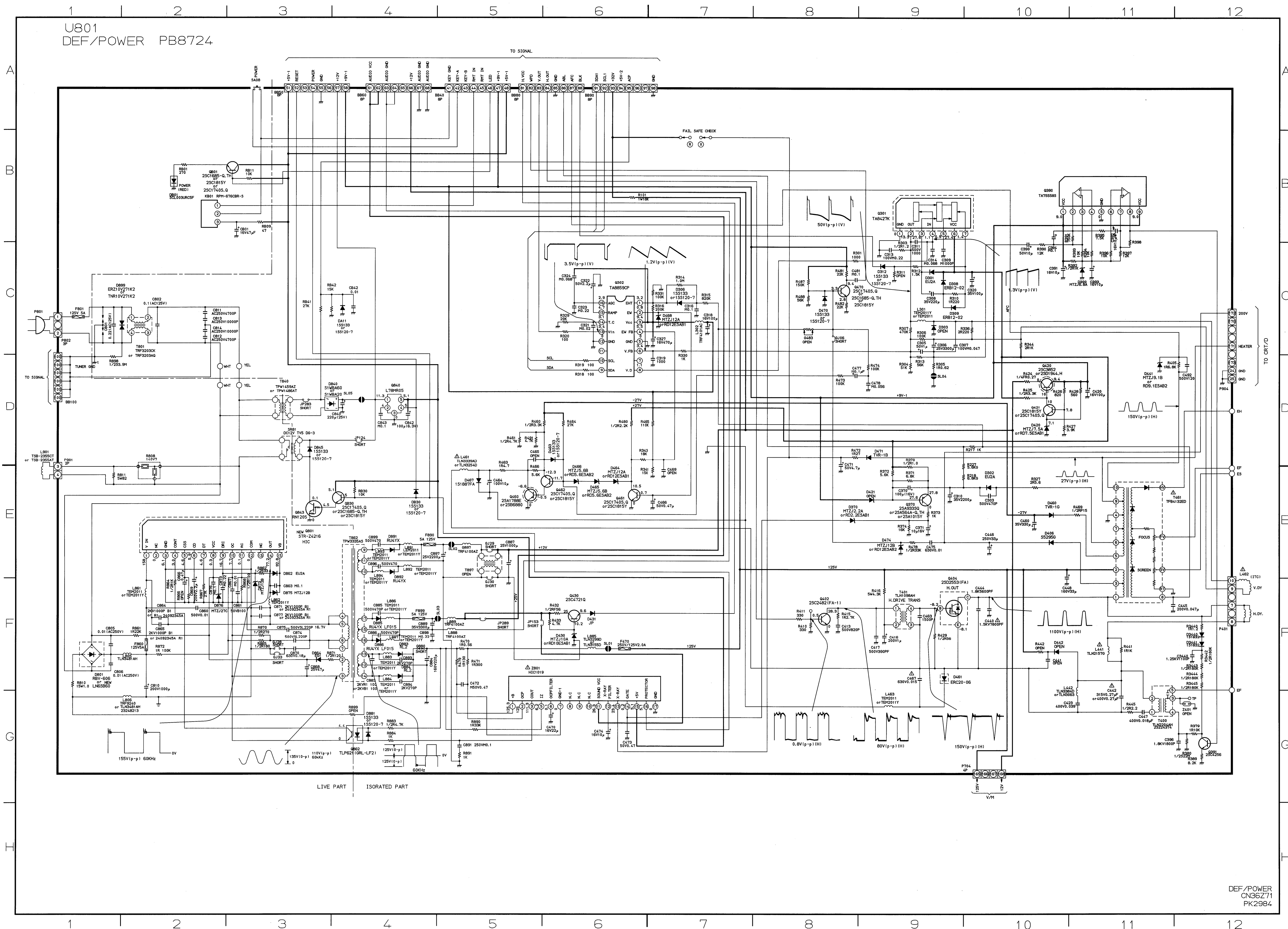
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